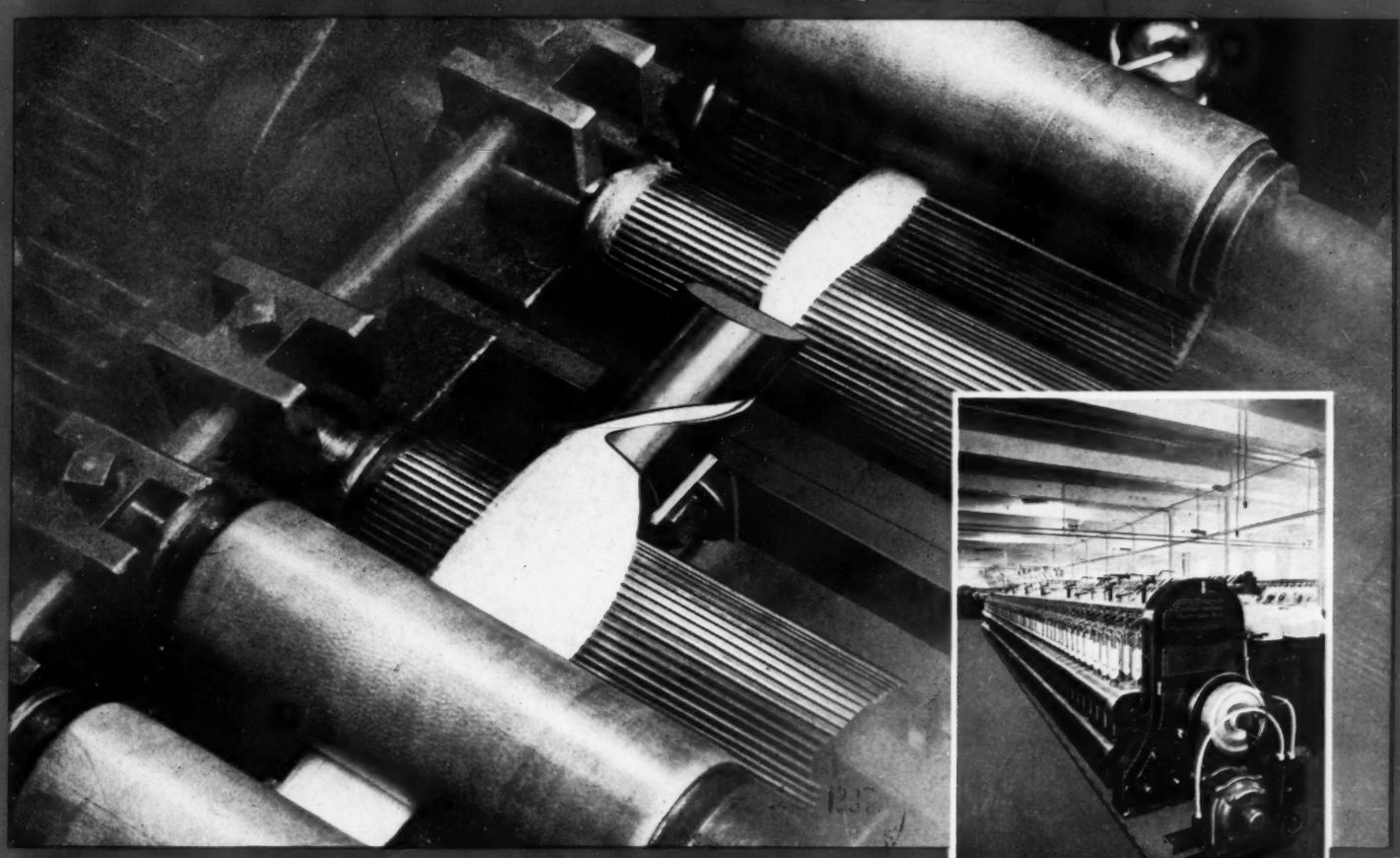
SEPTEMBER, 1937

COTTON

Serving the

TEXTILE INDUSTRIES



INSTALLED IN OVER 25 MILLS SINCE APRIL 1st

This machine is designed to take a 60 grain sliver from the drawing frame and draft up to 30, or to produce from 1.25 to 3.50 hank roving in one operation. This roving may then be spun on regular frames or long draft frames, depending upon the count of yarn required.

Used in conjunction with a 3-roll slubber, two operations can be employed for producing 7.00 hank and finer roving.

The number of rollers (4 or 5) on the HI-DRAFT Roving Frame is determined by the drafting requirements, the five roller system being illustrated herewith.

The most characteristic feature of this new HI-DRAFT roving system is our PATENTED Scroll Condenser — a simple but effective device. As the drafted cotton leaves the third roller in a thin web the Scroll Condenser folds the thinner edges over toward the thicker center which results in an even strand, but does not crowd the fibres. At the same time a half turn of false twist lays all the loose fibres together and gives the sliver strength and body for the next drafting operation.

The Scroll Condenser is made of Bakelite which eliminates all static electricity.

The H & B HI-DRAFT Roving Frame is the result of several years of study in our experimental department and is now successfully operating in more than 35 mills.

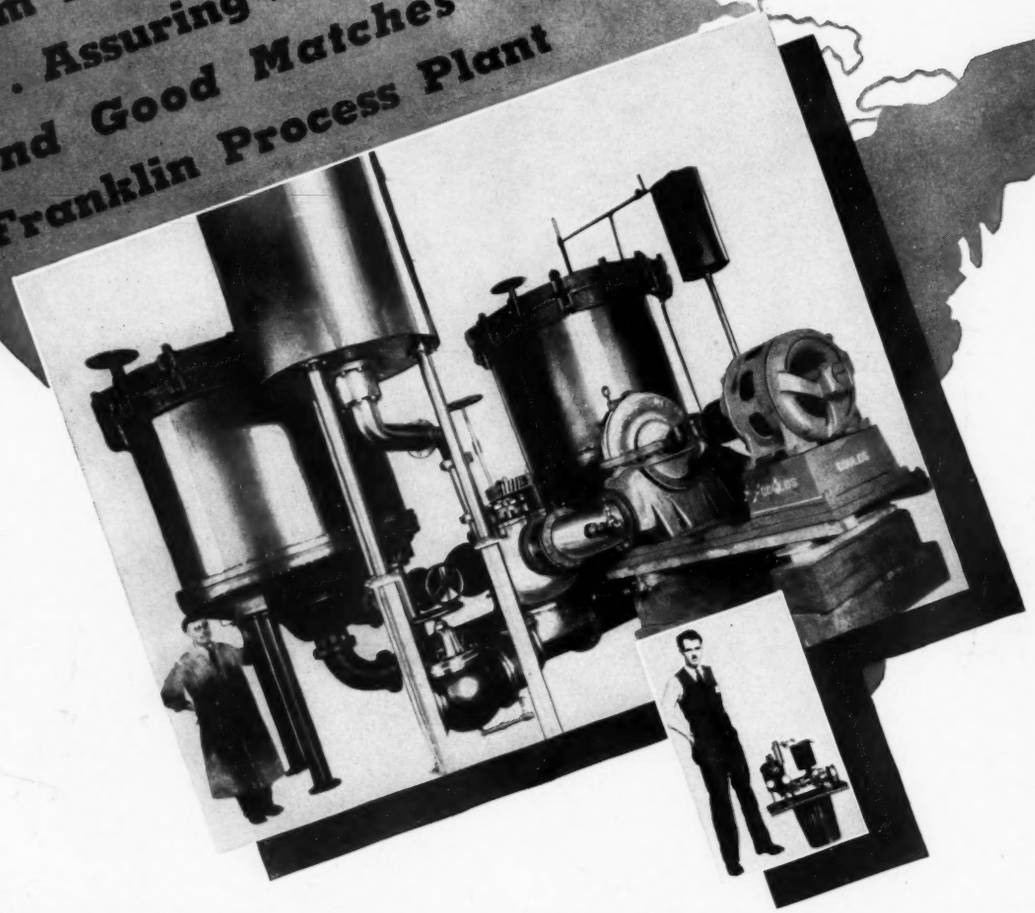
Further information on request.

H & B AMERICAN MACHINE COMPANY
TEXTILE MILL MACHINERY
PLANT AT PAWTUCKET, RHODE ISLAND

BOSTON OFFICE . . . . . 161 Devonshire Street
ATLANTA OFFICE . . . 815 Citizens & Southern National Bank Bldg.
CHARLOTTE OFFICE . . . . . 1201-3 Johnston Bldg.

THE H & B HI-DRAFT ROVING FRAME WITH PATENTED SCROLL CONDENSER

22 Different Sizes of Package Yarn Dyeing Machines, Ranging from 1 to 3,000 lbs. in Capacity . . . Assuring Prompt Deliveries and Good Matches from any Franklin Process Plant



All Franklin Process custom yarn dyeing plants are equipped with a great variety of package machine sizes, varying in capacity from 1 to 3000 lbs.

This means that there is a machine available to accommodate your particular poundage in ONE batch without too much excess space or without waiting for another order for the same color in order to fill a machine. Thus the proper relation between liquor volume and yarn volume is maintained which facilitates accurate and ready matching of shades and thus unnecessary delays in delivery are eliminated.

Franklin Process Service offers many other advantages including the fact that there is a Franklin Process Plant in YOUR vicinity prepared to meet emergency requirements when necessary.

All Franklin Process plants use Franklin Process Package Dyeing machines exclusively for coloring spun yarns.

This method of dyeing is distinguished from other package dyeing methods by certain mechanical features that assure superior quality. Our representative will be glad to explain on request.

Franklin Process

SPECIALISTS IN PACKAGE DYEING SINCE 1910

Natural Yarns *Colored Yarns* *Glazed Yarns* *Dyeing and Processing Machines*

PROVIDENCE · PHILADELPHIA · GREENVILLE · CHATTANOOGA · CHICAGO · N. Y. REPRESENTATIVE, 40 WORTH ST.

COTTON is published monthly by W. R. C. Smith Publishing Company, Dalton and Atlanta, Ga.
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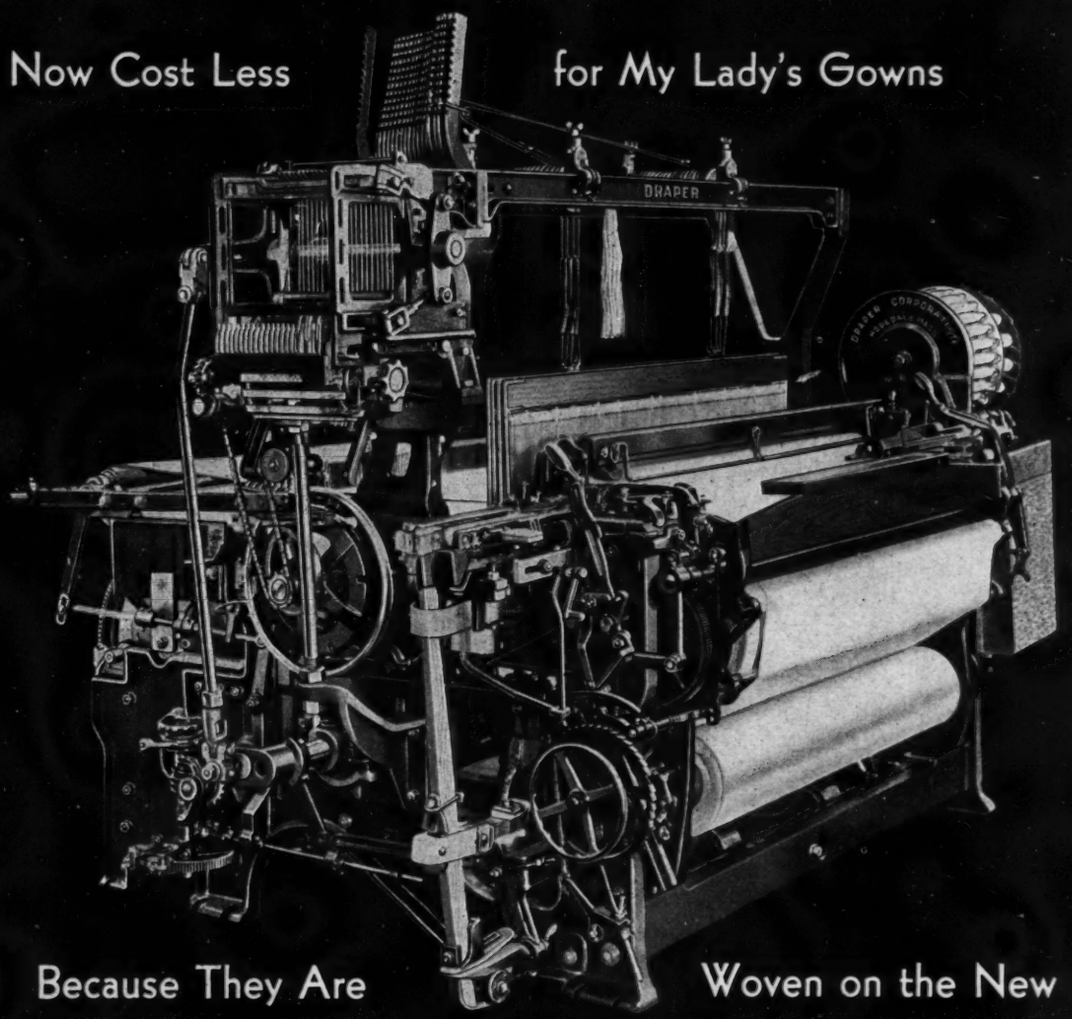
Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

Beautiful Printed Rayons

Now Cost Less for My Lady's Gowns



Because They Are Woven on the New

Draper High Speed Rayon Loom

The XK Model

Most Efficient and Most Economical Rayon Loom

for All Fabrics Woven with One Shuttle

DRAPER CORPORATION

Atlanta Georgia Hopedale Massachusetts Spartanburg S C

A NEW *Twist* TO POWER SAVING

Texaco Starfak has been proved in hundreds of mills. For example, tests lasting for more than 1800 hours failed to show deterioration or material change in its characteristics.

YOU'LL get all of the power saving that high-speed, anti-friction bearings were designed to give . . . reduce replacement expense, the oil-spotting of goods, the frequency of lubrication . . . by using Texaco Starfak No. 2.

Especially developed for small, high-speed bearings, Starfak provides lower starting and running torque. It forms a stable, durable film that seals out abrasive dirt and lint. Many greases bought for anti-friction bearing lubrication separate, the oil leaking out causes damage to textiles, the residue stays behind and causes power drag.

Trained lubrication engineers are available for consultation on the selection and application of Texaco Petroleum Products. Prompt deliveries assured through 2070 warehouse plants throughout the United States. Use Texaco Starfak and get the many economies this *modern power-saver* can bring you. The Texas Company, 135 E. 42nd St., N. Y. C.

TEXACO

TEXACO *INDUSTRIAL LUBRICANTS*

Protected THROUGHOUT WITH TRUSCON PAINTS

This famous southern mill building (name on request) is protected inside and out with the following TRUSCON products: Bar-Ox Inhibitive Steel Coating, Liquidized Galvanized Cement Coating, Waterproof House Paint, Window Caulking Compound, Waterproofing Paste, Wall-Lite Enamel, Wall-Lite Flat, Alkabar Pigmented.

Check Your Problem Here—

And Mail to Your Nearest TRUSCON Branch or to Detroit

- √ Acid-Resisting Enamel
- √ Fume-Resisting White
- √ Damp-proofing a Wall
- √ Painting a Roof
- √ Slip-proofing Concrete Floors
- √ Painting over Rust
- √ Preserving Wood Floor
- √ Non-Yellowing Mill White
- √ Aluminum Paint
- √ Brick and Cement Coating
- √ Heat-Resisting Paint
- √ Non-Glare Paint for Windows

TRADE MARK REGISTERED

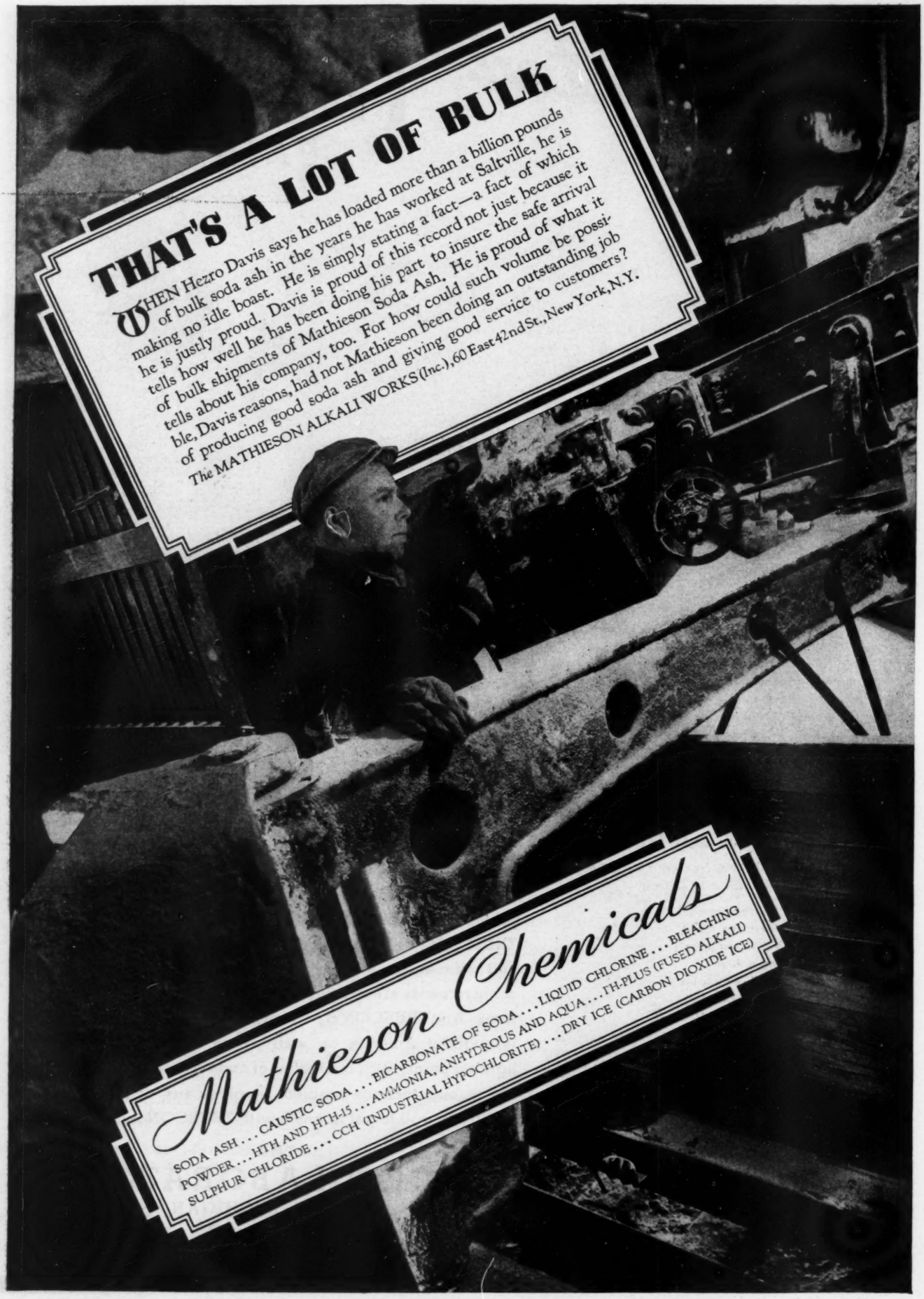
A Laboratory Product for Every Paint Requirement

All TRUSCON paints, enamels, varnishes and waterproofings are the result of profound chemical research and are manufactured in strict accordance with laboratory standards and procedure. That is why for nearly 30 years TRUSCON has been regarded as the leading technical authority on protective coatings for all varieties of surfaces, and why TRUSCON products are considered the ultimate in quality and efficiency. Among TRUSCON'S many outstanding achievements are *coatings to resist fume and acid conditions.* And TRUSCON'S performance for industrial buildings throughout America on wall paints, non-yellowing daylighting paints, etc., is a matter of open record. If your building or maintenance problem involves any of these listed it will pay you to get in touch with TRUSCON immediately.

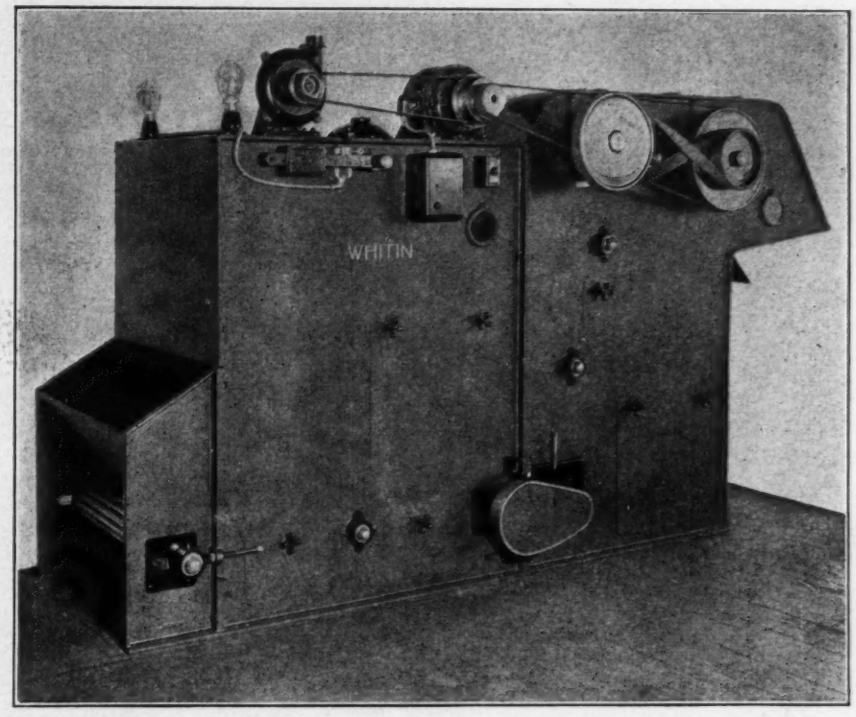
THE
TRUSCON LABORATORIES
DETROIT, MICHIGAN

Southern Branches:

Charlotte, N. C., 910 Johnston Bldg. • Atlanta, Ga., 128 Marietta St.


THAT'S A LOT OF BULK
WHEN Hezro Davis says he has loaded more than a billion pounds of bulk soda ash in the years he has worked at Saltville, he is making no idle boast. He is simply stating a fact—a fact of which he is justly proud. Davis is proud of this record not just because it tells how well he has been doing his part to insure the safe arrival of bulk shipments of Mathieson Soda Ash. He is proud of what it tells about his company, too. For how could such volume be possible, Davis reasons, had not Mathieson been doing an outstanding job of producing good soda ash and giving good service to customers?
The MATHIESON ALKALI WORKS (Inc.), 60 East 42nd St., New York, N.Y.
Mathieson Chemicals
SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . . AMMONIA, ANHYDROUS AND AQUA . . . FH-PLUS (FUSED ALKALI) SULPHUR CHLORIDE . . . CCH (INDUSTRIAL HYPOCHLORITE) . . . DRY ICE (CARBON DIOXIDE ICE)

THE WHITIN BLENDING FEEDER



Well blended cotton is vital to a better product

Thorough blending is accomplished with the Whitin Blending Feeder. The cotton from the different bales is well mixed and nicely opened.

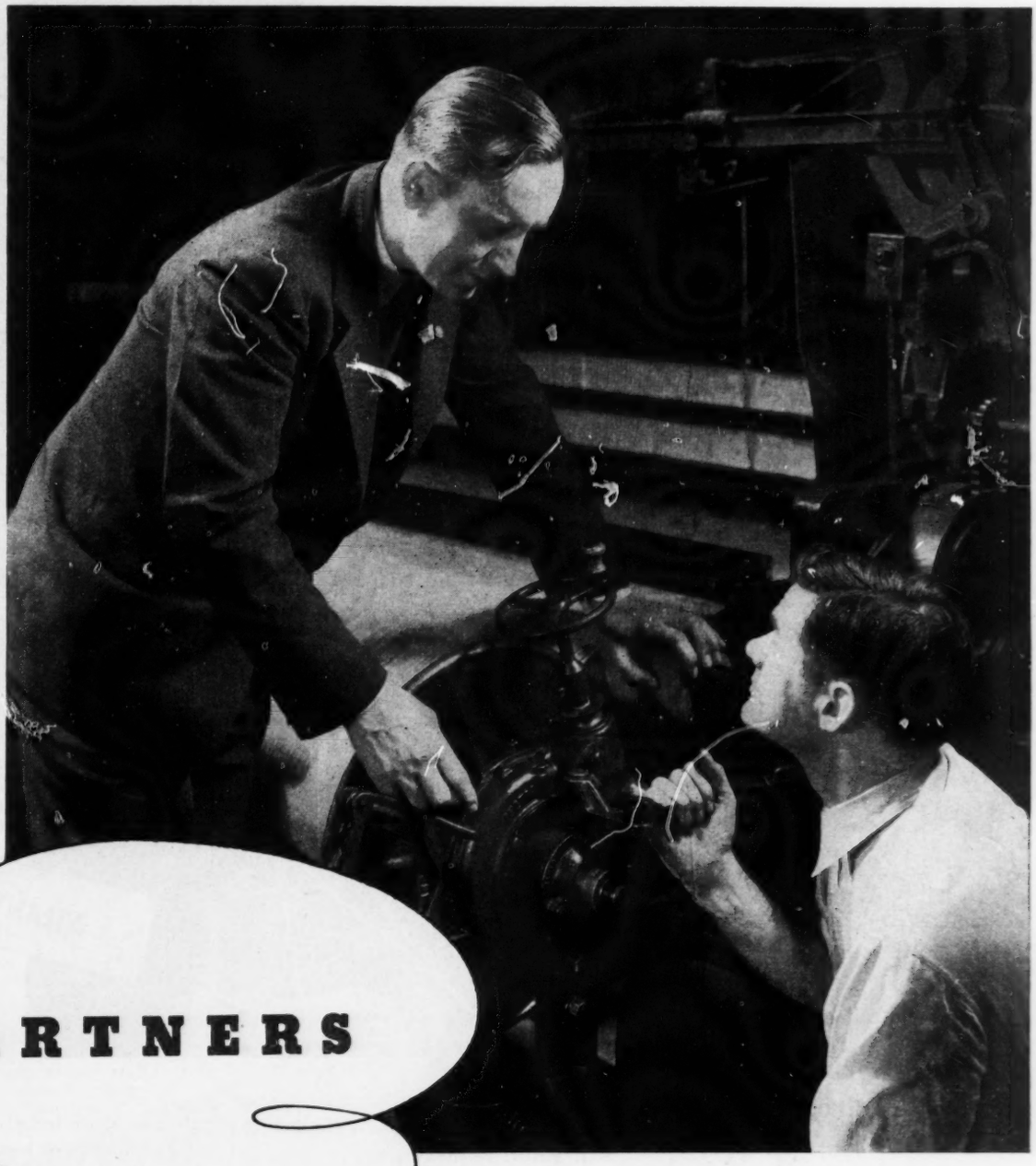
A surprising amount of small leaf and dirt is taken out in the Feeder, instead of in later processes. The picker laps are cleaner and more even, because a higher percentage of dust and fly is removed in the Opening and Picker Rooms.

We would be glad to make a survey of your Opening Room and to submit layouts.

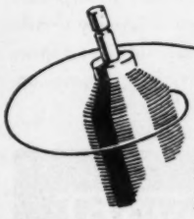
WHITIN MACHINE WORKS

Charlotte, N. C. WHITINSVILLE, MASS. Atlanta, Ga.

INDIVIDUAL SEWING OPERATION
UNIT COST (Old Machine).... 11.3¢
UNIT COST (New Machine).... 9.8¢
SAVINGS PER DAY 84.0¢
SAVINGS PER YEAR $202.56
Interesting Figures
ABOVE is an example of actual savings secured by replacing old style sewing machines with new Union Specials. Individually, or per unit, the savings may seem inconsequential, but multiply them by your annual production and you will see why it pays to modernize.
This is not an exceptional case. In the Union Special line of modern sewing equipment, you will find machines that offer similar money-making opportunities to all branches of the needle trades. We will be glad to tell you about them.
UNION SPECIAL MACHINE CO.
400 N. Franklin St., Chicago, Ill.
ANALYZE
your costs scientifically. Ask your nearest Union Special representative to show you Survey Form No. 496 for making comparisons between old and new sewing machines.
UNION SPECIAL



PARTNERS



HERE is a familiar scene in American industrial plants today—the Gulf lubrication engineer working in cooperation with a plant man who is responsible for production.

Both have a definite objective: To get the most efficient lubrication possible for every bearing, gear and moving part in the plant. So they "team up," pool their knowledge and experience in a united effort to defeat friction.

The Gulf engineer is well fitted to carry on this cooperative work. His entire time is spent in gaining and applying knowledge of oils and greases—to the end that machines may operate more efficiently and economically. He works with the plant operator, recommending the use of lubricants exactly suited to each moving part and suggesting the best methods of application.

Such careful attention to lubrication pays a generous reward in lowered costs for maintenance, and for power. And, better still, the results are further reflected in improved production from all plant machinery.

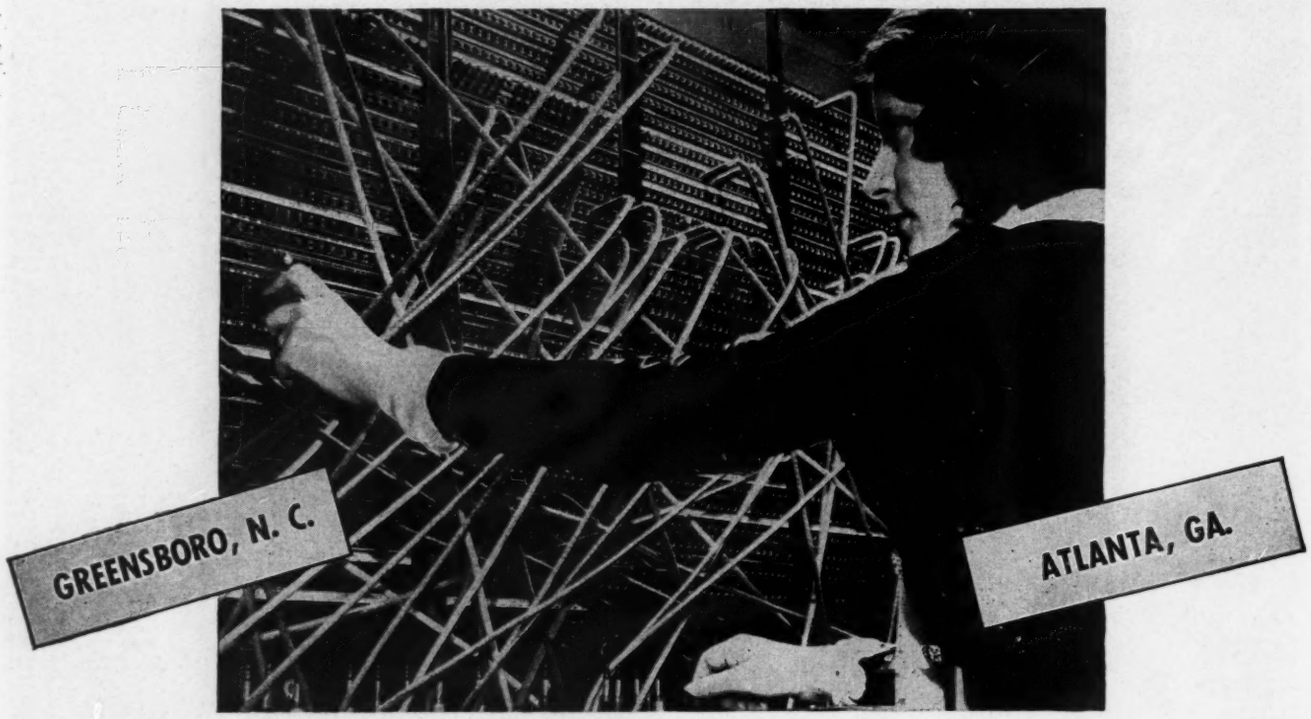
The Gulf line includes more than 400 quality oils and greases. The combination of this quality line of lubricants and Gulf's engineering counsel can help *you* attain maximum efficiency for every machine in *your* plant.

GULF INDUSTRIAL LUBRICATION

Your Connection Sir...

to prompt, "on the grounds"

Air Conditioning Engineering Service in the South!



Greensboro—in the Guilford Building. Mr. A. B. Wason in charge. Tel: Greensboro 5325.

Atlanta—in the 101 Marietta Street Building. Mr. J. C. Marlow in charge. Tel: Walnut 5108.

At your service... our engineers in these offices. They are especially equipped by training and long experience to cooperate with southern textile mills in the solution of air conditioning problems. They are men who "talk your language"... who have a thorough knowledge of textile mill requirements.

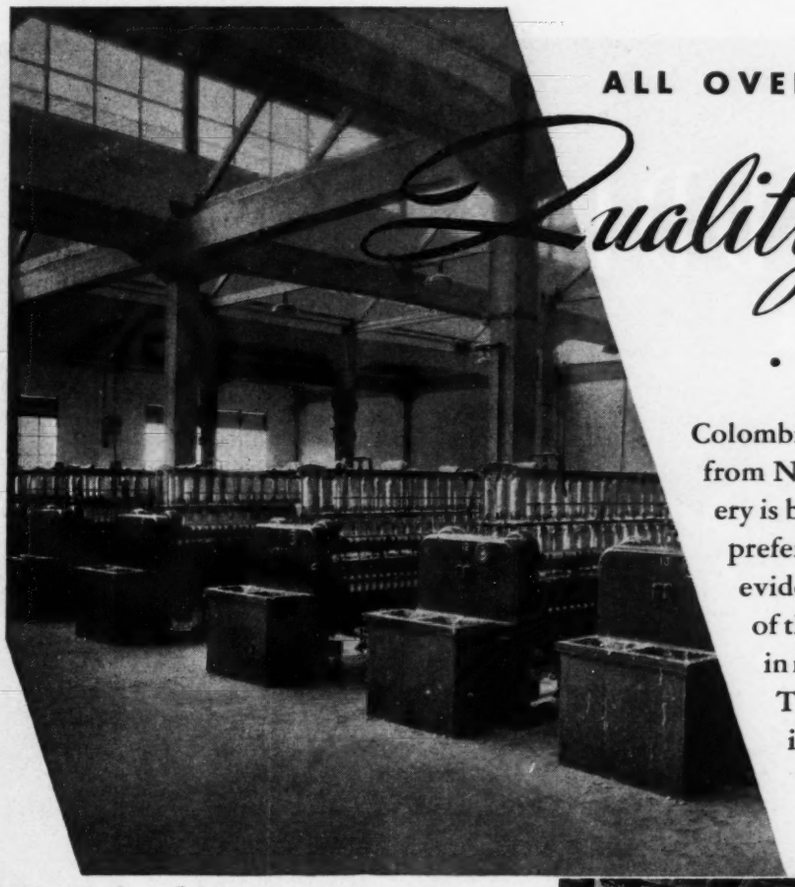
It would pay you to let one of these engineers tell you about our Central Textile Evaporative and Cooling Systems which have been installed by southern mills with gratifying results.

Recent installations have been made at:—Hudson Silk Hosiery Co., Charlotte, N.C., Tubize Chatillon Corp., Rome, Ga., American Enka Corp., Enka, N.C., and Carter Fabrics Corp., Greensboro, N.C.

All these above installations incorporate the latest design of high efficiency textile evaporative cooler and humidifier... spray type, designed to effectively remove objectionable grit, soot and fly.

Sturtevant
Evaporative Cooling
FOR BETTER PRODUCTS
AT LESS COST

COOLING AND AIR CONDITIONING CORPORATION
DIVISION OF B. F. STURTEVANT CO., HYDE PARK, BOSTON, MASS.
ATLANTA · CAMDEN · CHICAGO · GREENSBORO · NEW YORK



ALL OVER THE WORLD — WHERE

Quality IS PARAMOUNT

. . . SACO-LOWELL

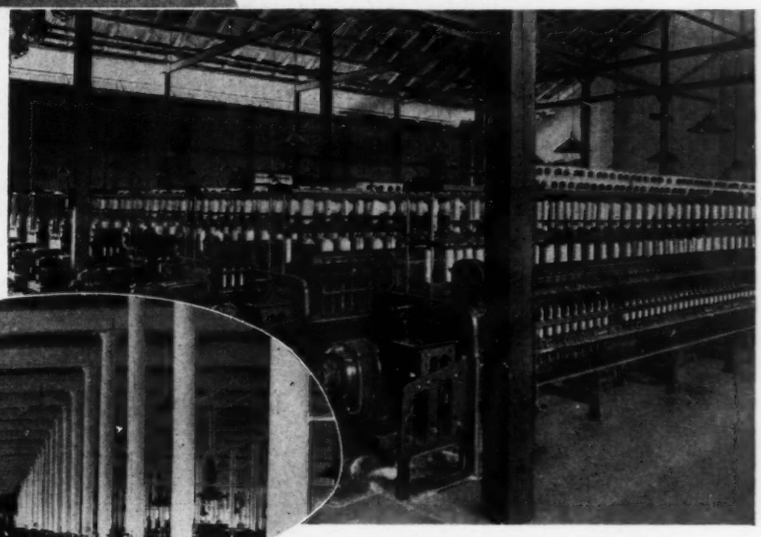
Colombia, South America, is an eight-day journey from New England where Saco-Lowell machinery is built. And yet, even there, you will find a preference for Saco-Lowell equipment. That's evidence — the most convincing evidence — of the profound confidence which mills have in machinery bearing the Saco-Lowell name. To these mills, absolute dependability is important, long-lived performance vital, and continuous machine production without interruption imperative.

In Colombia . . .

Saco-Lowell Spinning Frames — Tejidos El Condor, Medellin, Colombia, S. A.

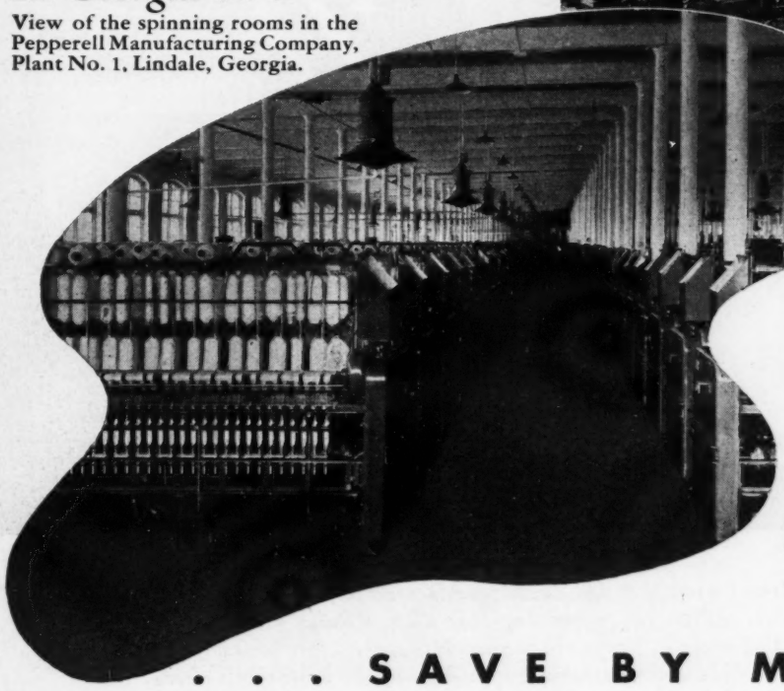
In Colombia . . .

Saco-Lowell Spinning Frames in the Fabrica de Tejidos Obregon, Barranquilla, Colombia, S. A.



In Georgia . . .

View of the spinning rooms in the Pepperell Manufacturing Company, Plant No. 1, Lindale, Georgia.

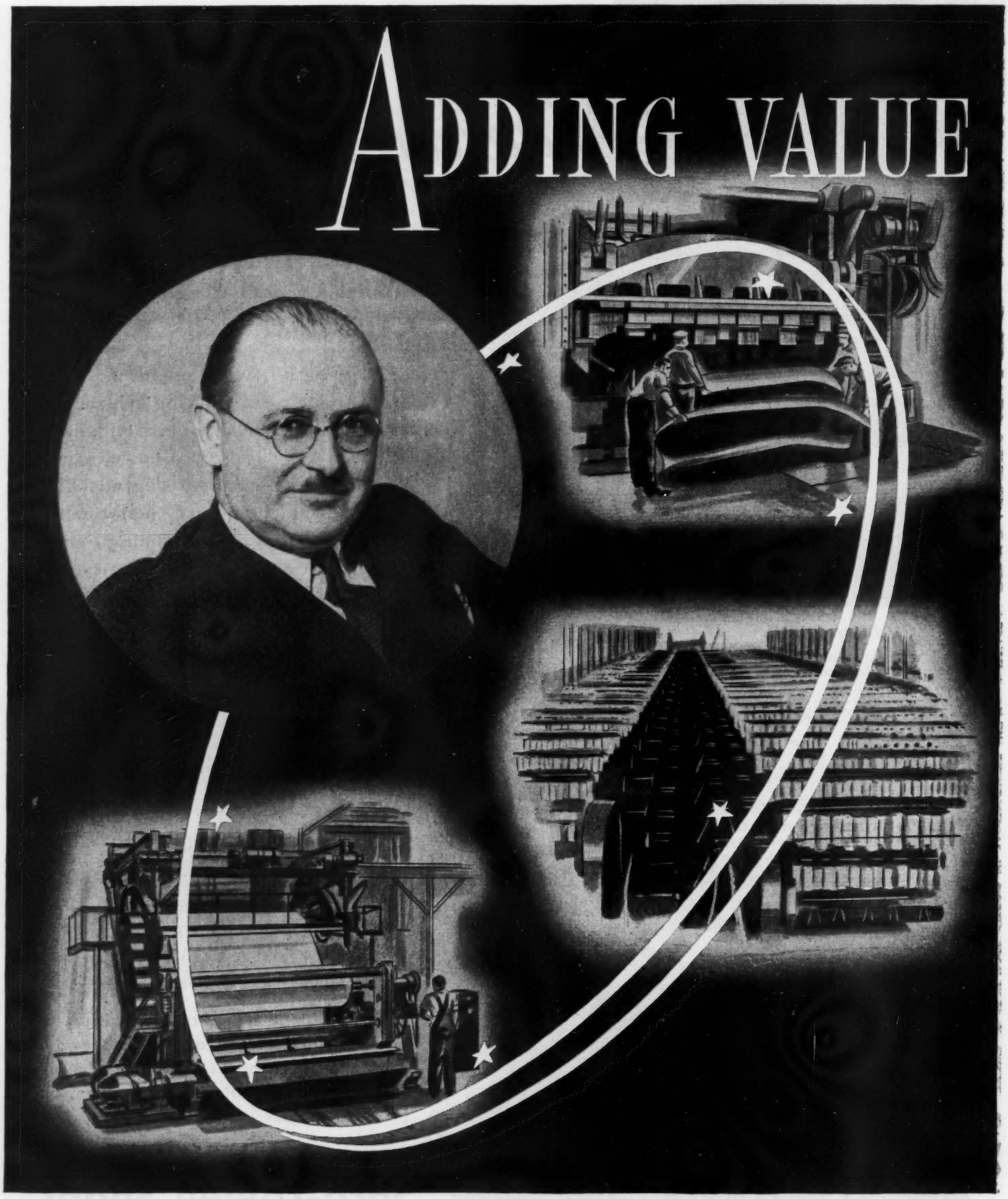


These mills know it would be suicidal to install anything but the most efficient equipment. Wisely they have turned to Saco-Lowell for the solution to their modernization problems.

Saco-Lowell Shops

147 Milk St., Boston, Mass.

. . . SAVE BY MODERNIZING



As a salesman Jim Corey was an early and active exponent of Sales Engineering service. Now, in promoting this idea as sales manager, he keeps out of his office chair 150 days of the year. His aim is close contact with Reliance men in the field and first-hand knowledge of the customer's needs.

TO YOUR *Dollars*

Running through the Reliance sales plan is the basic idea of giving "more for your money." This may or may not mean more steel or copper, but it does mean skilled assistance in applying motor-drive so that you can do some job quicker or improve your product in quality. We want the dollars you invest in Reliance Motors to bring maximum dollar returns in production « « « This Sales Engineering service comes to you through capable men who know the business-building value of prompt and helpful attention to your wants. Their basic engineering training is constantly supplemented by the study of production processes and the application of motor-drive in the industries they serve. They can understand your language, interpret your needs and get the right men to "step on it" if you are in a jam. « « « Primarily we do have a good product to exchange for your dollars, but in promoting the exchange we seek cordial buyer-seller relationships which will rate on the plus side for both.

—J. W. Carey
Sales Manager

Many of our customers are profiting from the suggestions of Reliance Sales Engineers that they replace ordinary open motors with "enclosed fan-cooled motors for drives exposed to dirt, iron dust, oil, moisture, etc." With better records for steady operation these protected motors prove to be low-cost insurance against lost production, delayed shipments, excessive maintenance and rewinding costs. They require less attention and last longer because windings stay clean and air gaps clear. You will find them effective aids to preventive maintenance.

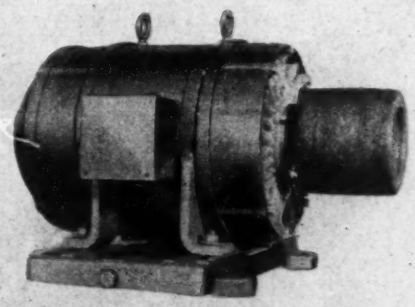
★ ★ ★

A good example of the kind of application for which it pays to use fan-cooled motors is shown at the right. Here a 3 hp. a-c. motor is driving two dye jigs in a finishing plant. Although the motor is exposed to spattering dye and humid conditions, the windings are fully protected and are kept clean and dry.

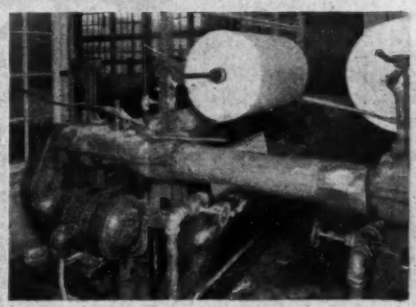
★ ★ ★

We shall be glad to supply more detailed evidence that Type "AA" fan-cooled motors can be depended upon for reliable performance under unfavorable conditions.

RELIANCE ELECTRIC AND ENGINEERING COMPANY
1088 IVANHOE ROAD • CLEVELAND, OHIO
Branches: BIRMINGHAM • BOSTON • BUFFALO • CHICAGO • CINCINNATI
DETROIT • GREENVILLE, S. C. • NEW YORK • PHILADELPHIA • PITTSBURGH
Representatives in Other Principal Cities



Enclosed Fan-cooled Reliance Squirrel-cage Induction Motor



Dye jigs driven by Fan-cooled Motor

RELIANCE A-C D-C MOTORS

Thanks a Million!

for making us inspect 56 Million Card Clothing Points Every Day

Tuffer inspectors with eyes like eagles look at 56 million points of card clothing wire every day. That's why points are always uniform and give you efficient and unvarying carding. From foundation to final inspection Tuffer Card Clothing is in the hands of conscientious and capable craftsmen.

A mill man in the South says, "When we put Tuffer Clothing on a card our troubles are over for a long time."

Let Tuffer prove its merits in your mill the next time you need clothing.

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.
CARD CLOTHING

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

Southern Plant: 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas

Products: Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards — Napper Clothing, Brush Clothing, Strickles, Emery Fillets, Top Flats Recovered and extra sets loaned at all plants — Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant — Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

• GDC offers a complete range of Weather-fast dyestuffs....

GDC

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET, NEW YORK, N. Y.

NOW 22% MORE LIGHT FROM THESE NEW...

Your lighting dollar buys more than ever before. The new 350-watt Cooper Hewitt gives the same amount of light as the former 450-watt unit. You can run more lamps per circuit. They have high power factor, instant starting and hang horizontal to give the best light distribution.

These new "24-hour skylights" assure an ease of seeing, even in the most difficult places, that benefits both worker and manufacturer. The soft, detail-revealing light does not fatigue the eyes. It promotes better work and minimizes errors.

Have our nearest representative survey your needs. It places you under no obligation. He will give you the facts about the light which is enjoyed by more than a million workers and their employers. A letter will receive our immediate attention.

General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

GENERAL ELECTRIC VAPOR LAMP COMPANY

833C

"I didn't see it" is never an excuse under this modern light. Workers see better . . . without fatigue . . . even at the low levels of illumination in the shadows—with the horizontal Cooper Hewitt lamps. Broken threads can be spotted at greater distances and more quickly.

By adding incandescent lamps to the mercury within the fixture, lighting is obtained that closely resembles daylight values for operations that require perception of color.

WANT TO CUT WEAVING COSTS?

MODERN HIGH SPEED LOOMS *plus* WESTINGHOUSE DRIVE *are your answer*

1 Draper Model X Loom with 1-hp. Westinghouse Loom Motor and WK-18 Motor-mounted starter.

2 Westinghouse loom motors are built with extra strength to withstand high speed loom service. High humidity will not damage the windings—they are triple-impregnated.

3 Motor-mounted WK-18 Starter guards the motor against damage from overloads. Safely and quickly reset by any operator.

LINT-FREE MOTORS—Large air passages, glass-smooth windings, tapered rotor vanes prevent lint from staying in Westinghouse textile motors.

"DE-ION" LINESTARTERS—Most important forward step in the entire history of motor control equipment.

NOFUZE "DE-ION" CIRCUIT BREAKERS—eliminate fuse outages and resultant man and machine-hour losses. Service is restored by a flip of the handle.

New high speed looms such as the Draper Model X will give you the greatest economies when matched with Westinghouse loom motors and WK-18 starters. Westinghouse drive is built to keep these modern looms at peak output. Here are the reasons:

Ample Power for breaking in new looms.

High Efficiency and power factor give low power consumption.

Low Maintenance is assured by long life bearings, accessible oil fillers, and an overflow drain that gives immediate indication that sufficient oil has been supplied, and avoids waste of lubricant. Oil cannot reach the motor windings.

Effective overload protection by the famous "Motor Watchman" that protects against dangerous overloads, but permits the motor to carry safe overloads without interruption.

When you install new high-speed looms be sure to specify Westinghouse drives. They are built especially for the Draper Models C, X, XK, XL and the C & K Models C3, C4, S3, S4, W2 and W3. J 03016

Westinghouse Elec. & Mfg. Co., Lima, Ohio

UNDIVIDED RESPONSIBILITY MULTIPLIES THE VALUE of WESTINGHOUSE SERVICE

FROM INCOMING LINE TO DRIVEN MACHINE

Specify **Westinghouse**

The real test, and the only real test of the uniformity of a picker lap is the uniformity of the card sliver produced from it.

Many careful tests have shown that of two laps of equally good yard by yard uniformity, one will produce card sliver with twice as much variation as the other.

Yard by yard lap weights are interesting symptoms, but if fairly uniform, these weights prove nothing until the card sliver is tested. Of course, if the yard by yard weights are very bad the lap is not a good lap, but the yard by yard weights can be *very good* and the lap still not be a good lap.

A yard of lap makes about 100 yards of card sliver. *Did anyone ever test card sliver with a 100-yard weighing?*

A 14½-oz. yard of lap will make about 3,000 yards of 4.00 hank roving. *What would happen to a Boss Carder who tested a 3,000-yard weighing of roving?*

An even lap must be even internally throughout and in every direction. It is not enough that the average of lumps and holes be fairly good yard by yard

Our experience has convinced us that it is impossible to make a well-distributed lap directly from loose cotton. The fact that so many mills have had us Synchronize their loose cotton single process lappers, with greatly improved results, makes us believe that we are right.

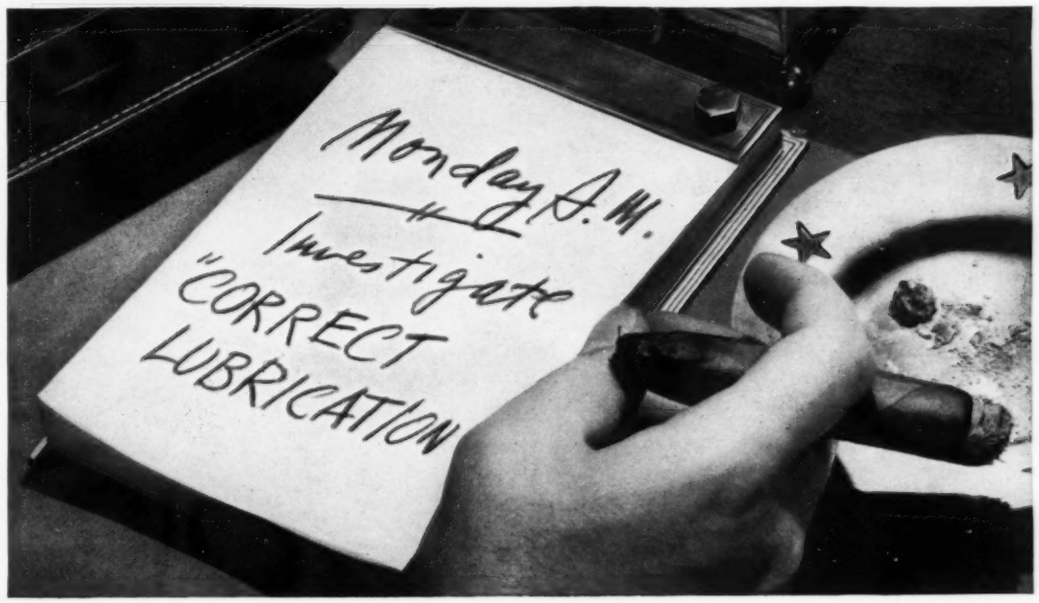
AldricH MachinE

Greenwood, **WorkS** South Carolina

A Scrap of Paper Worth Millions

TO EVERY MAN WHO OWNS A PLANT OR RUNS A MACHINE:

Busy Executives...for 71 years...have found the man who sells Gargoyle Oils offers a Proved, Practical way to increase Manufacturing Profits



How "Correct Lubrication" Saves Millions for Industry

1. Curbs power losses . . . saves consumption and costs.
2. Decreases maintenance costs —eliminates unnecessary repair bills.
3. Improves production by greater machine efficiency.
4. Lowers lubrication costs.

TODAY—more than ever—lubrication is a science. Machines are more complex. Production schedules faster . . . more exacting!

That's why it will pay you to investigate "Correct Lubrication"... to see the Socony-Vacuum representative when he calls.

For Socony-Vacuum...the first to treat lubrication as a scientific problem . . . is backed by greater experience than any other oil company in the world.

When you buy Socony-Vacuum's Gargoyle Lubricants, you get oils and greases which are exactly, scientifically right for your machines. You get CORRECT LUBRICATION —that cuts costs . . . increases plant efficiency . . . increases profits!

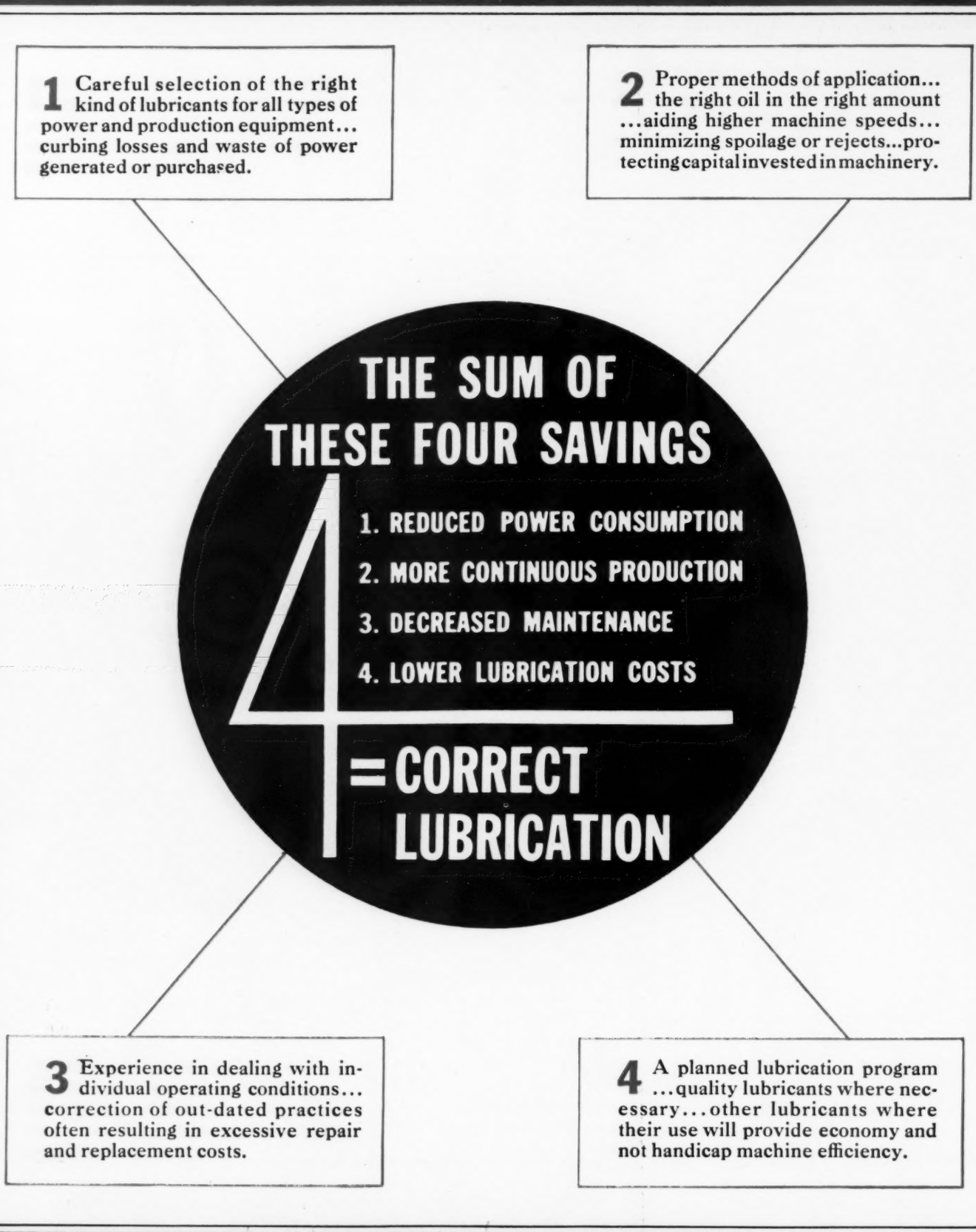
SOCONY-VACUUM

CORRECT LUBRICATION

GARGOYLE Lubricants

SAVES MONEY FOR INDUSTRY

Read what 71 Years' Lubricating Experience...the Greatest in the Oil Business...can do for You. See Next Page.


1 Careful selection of the right kind of lubricants for all types of power and production equipment... curbing losses and waste of power generated or purchased.
2 Proper methods of application... the right oil in the right amount ...aiding higher machine speeds... minimizing spoilage or rejects...protecting capital invested in machinery.
THE SUM OF THESE FOUR SAVINGS
4
1. REDUCED POWER CONSUMPTION
2. MORE CONTINUOUS PRODUCTION
3. DECREASED MAINTENANCE
4. LOWER LUBRICATION COSTS
= CORRECT LUBRICATION
3 Experience in dealing with individual operating conditions... correction of out-dated practices often resulting in excessive repair and replacement costs.
4 A planned lubrication program ...quality lubricants where necessary...other lubricants where their use will provide economy and not handicap machine efficiency.

SOCONY-VACUUM OIL CO.

INCORPORATED

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA

GARGOYLE
Lubricants

What do USERS say?

"It is not because of the dollar or so we save in the cost per kettle of size that we use Arcy Liquefied 'less costly' starch, but because of the superior results we get from its use."

Just one of the many reasons given by mill operating executives for using the less costly starch liquefied with

ARCY

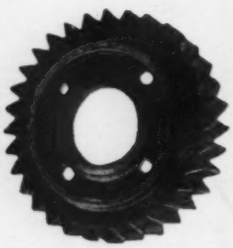
DRAKE CORPORATION

NORFOLK, VIRGINIA

FOR

MORE POWER
MORE SPEED
MORE ECONOMY

HENDERSON
TEXTILE REPAIR PARTS



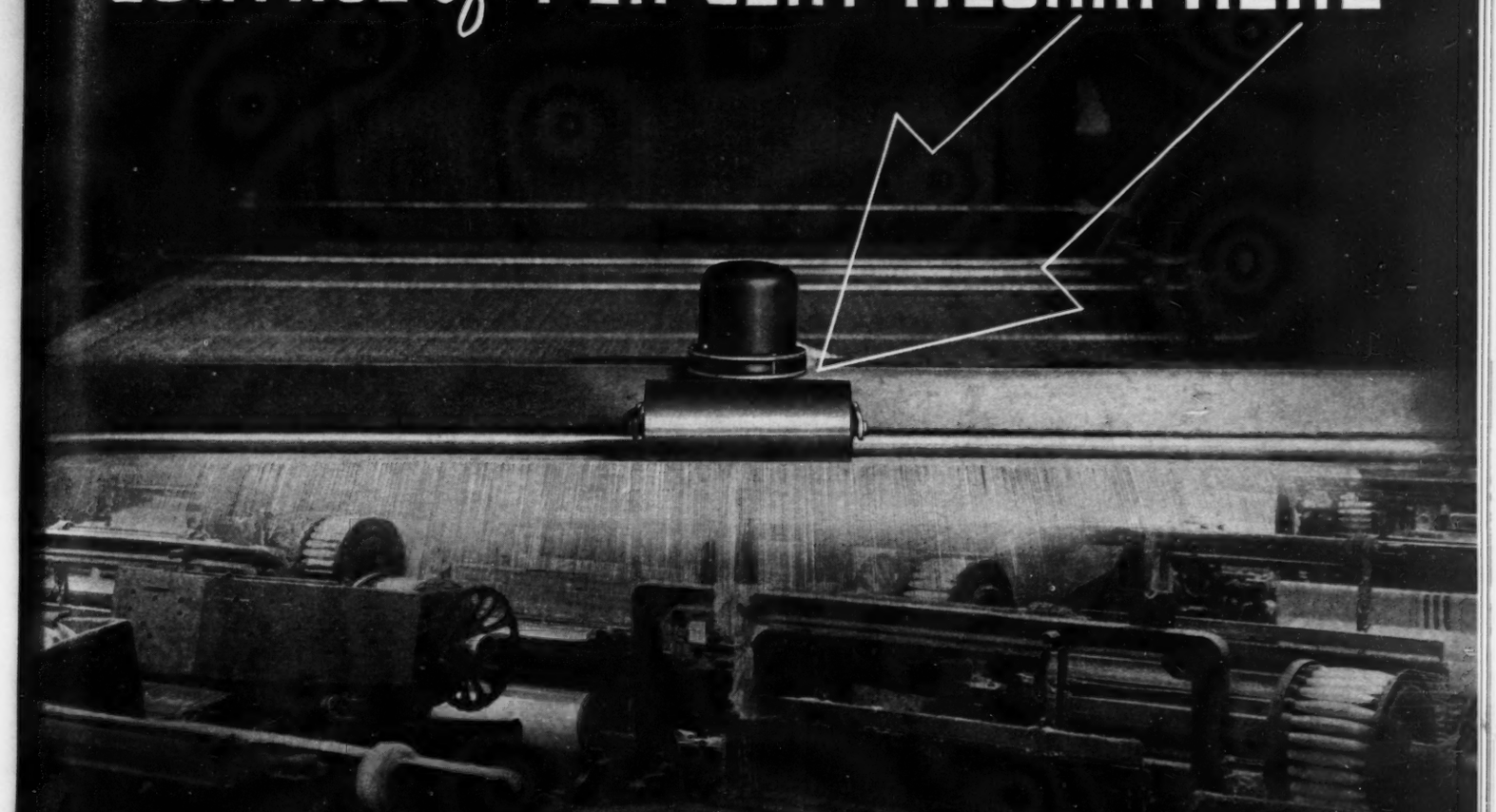
MORE power, speed and economy are watchwords in the textile mill's fight for more efficient production. But no matter how modern or up-to-date the equipment, it cannot continue to operate efficiently if parts are worn or fit improperly.

Let HENDERSON Textile Repair Parts help your equipment operate with more power, speed and economy. These carefully built parts contain added strength at the weak places ascertained by a study of present-day textile machine parts. They are made from precision patterns so that they always fit perfectly and consequently operate with smoother speed and greater power. They last longer, save many shutdowns and cut maintenance costs.

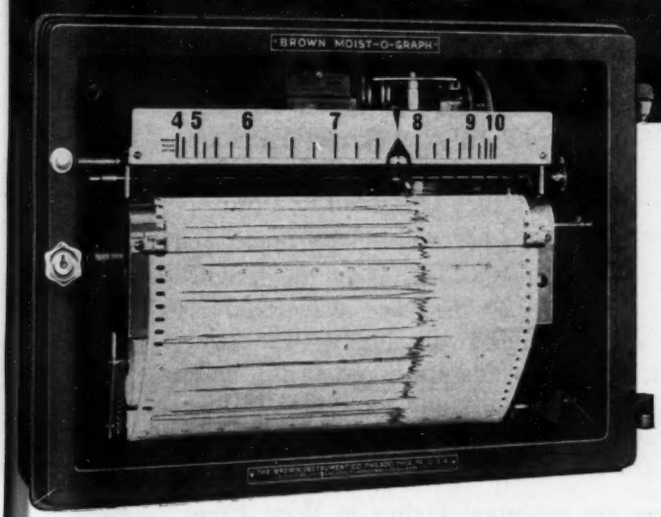
Quotations gladly given on any part or any number of parts for any make of textile equipment.

HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON GEORGIA

CONTROL *of* PER CENT REGAIN HERE



Increases WEAVE ROOM EFFICIENCY



A continuous record of the moisture content of every beam sized is made by the Moist-o-Graph on a 12-in. strip chart. A scale, also calibrated in terms of per cent regain and mounted above the chart, enables the operator to set the controller at the desired point to insure the required moisture regain.

IT has been definitely proved that—to obtain maximum per cent regain—moisture content of sized cotton yarn must be directly measured and controlled at the draw-off end of the slasher.

A quality fabric is produced with lower weave room humidity, because the fibers have not been over-dried and, consequently, they are capable of absorbing the same amount of moisture as in their natural state.

With the Brown Moist-o-Graph not only can you accurately measure the moisture content of sized yarn, but any operator can control per cent regain within the desired 7%—8%. Thus, a free-running uniformly flexible yarn is insured at all times—regardless of the size of the yarn or the number of ends.

Moreover, mildew, deterioration of size, yarn breakage, "dandruff" on the loom and other weave room complaints, traceable to faulty slashing, are eliminated.

No longer is it necessary to wait hours for a dry-and-weigh analysis or guess the per cent regain by the inaccurate hand method. Moist-o-Graph's method is exact and instantaneous.

The Brown Moist-o-Graph operates on the principle that for every per cent regain yarn has a corresponding electrical resistance. As the cotton yarn passes over the back press roll—the Moist-o-Graph detecting roller, in direct contact with the yarn, measures the moisture content continuously and records it in terms of per cent regain.

The desired per cent regain is constantly maintained by automatic control of either the steam supply or speed of the slasher. Guesswork and spoilage are eliminated . . . you select and control quality and results so that the yarn comes to the draw-off ready for maximum weave room efficiency.

There are many other advantages described in Bulletin 93-1. Write THE BROWN INSTRUMENT COMPANY, *a division of Minneapolis-Honeywell Regulator Co.*, 4492 Wayne Ave., Philadelphia, Pa. Offices in all principal cities. Toronto, Canada: 117 Peter Street. Amsterdam-C, Holland: Wijdesteeg 4. London, England: 70 St. Thomas' St., S.E. 1.

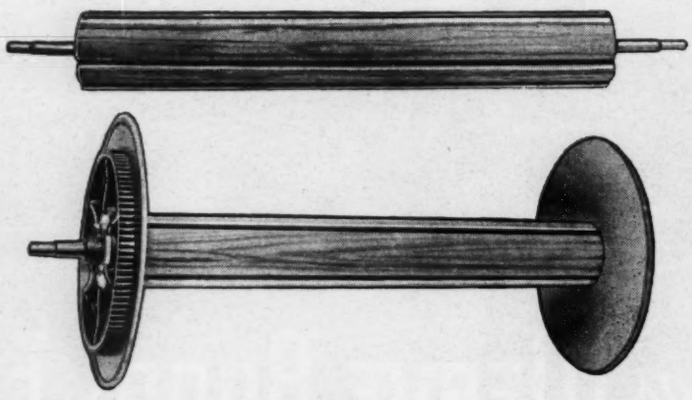
BROWN MOIST-O-GRAPH

To Measure and Control is to Economize

A Literal Phase to a Figurative Fact

"He who is false to the present duty breaks a thread in the loom, and you will see the effect when the weaving of a lifetime is unraveled."—L. Channing.

BEAM HEADS



BEAM BARRELS

West Point Loom Beams

With the use of the WEST POINT LOOM BEAMS, one is prevented from being "false to the present duty". For with these beams a weave room may have continuous and quality production, as well as the elimination of bad selvage. Thus, *greater efficiency per loom PLUS more production!*

West Point Beams run true! The heads are equidistant at all points! Therefore, an even amount of yarn winds on the beams at all points! *Thus, no high and low places at the edge of the warp, and consequent bad selvage!*

The heads have the proper thickness of material at what would otherwise be weak points. The pockets are machined inside so the barrels *fit snugly*. The heads and inside of pockets are finished with a special metal paint to prevent rust and consequent staining of the yarn.

WEST POINT BEAM BARRELS are made of suitable wood, which is thoroughly seasoned, air dried, then kiln dried to a proper moisture content. They will not warp.

The journals are made of special tough plow steel. *This increases their life at least 50%.* They are machined absolutely true and straight, and the heads are bored so the journals fit into them tightly *and stay put!* Before shipment all beams are assembled in our plant and heads checked for trueness!

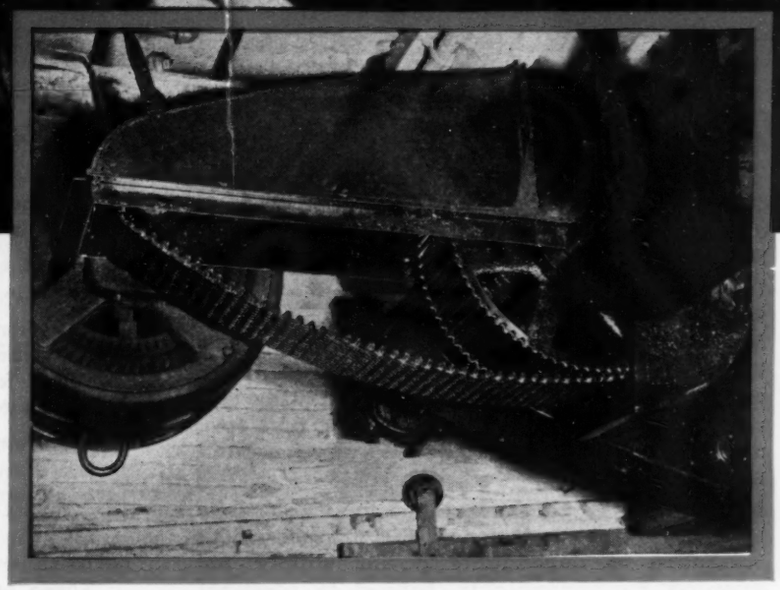
These are important factors in West Point Loom Beams which make them so efficient. A trial of these loom beams will demonstrate how they can actually improve and increase your production without added cost.

Also manufacturers of special machinery, cloth room machinery, textile machinery repair parts and gears.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA



● Working smoothly and quietly in their oil-retaining casings, many Link-Belt silent chain drives have been on the job continuously for one, two, even three decades.

Think what this means in terms of cost. Starting with a low first cost (frequently lower than belts), each additional year that a Link-Belt silent chain drive is in service brings down the overall cost until it is negligible. Usually, after it is written off the books — it still goes on delivering every R. P. M. of the motor (no-slip) in a smooth, steady "flow."

That's efficiency — qualities which assure steady top production with little time out for maintenance and repairs.

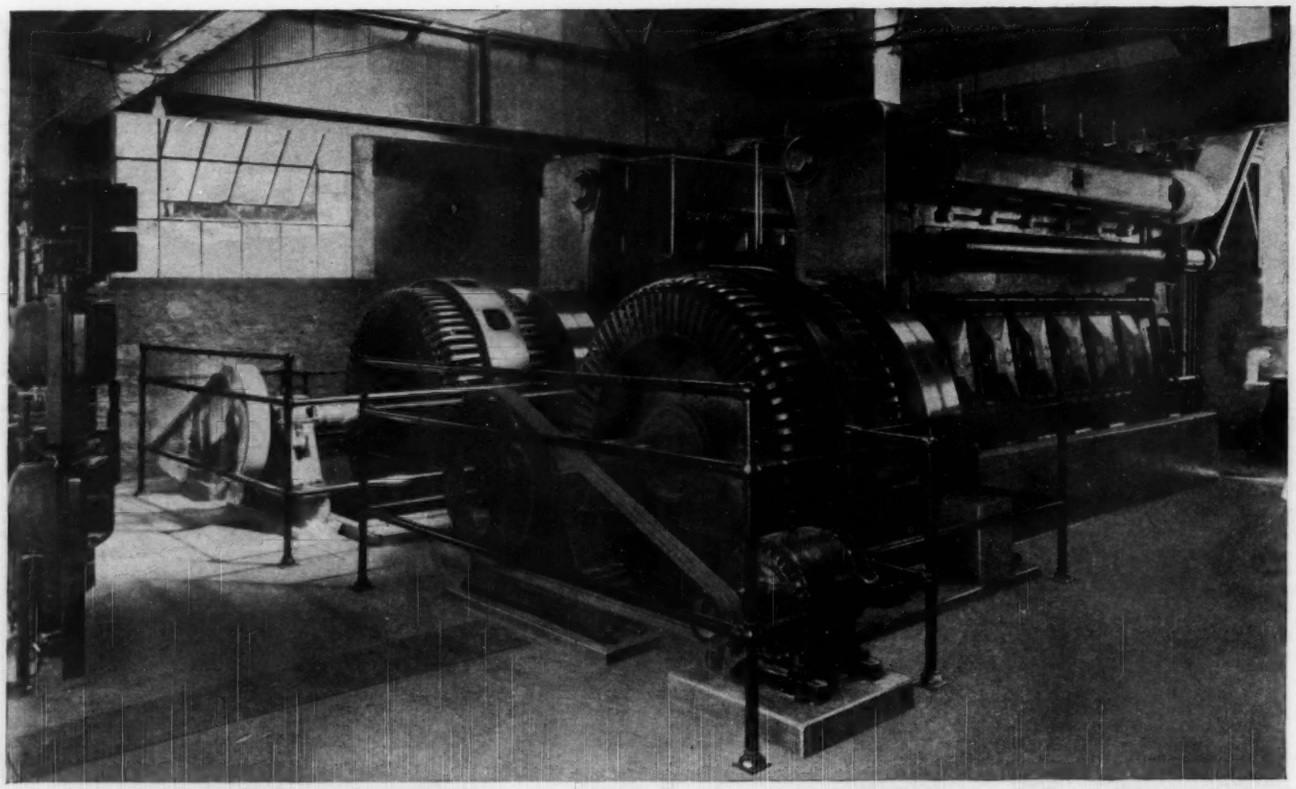
The nearest Link-Belt Positive Drive Specialist can show you how this drive can be profitably applied in your plant. Send for engineering data book No. 125.

Link-Belt Company, Indianapolis, Chicago, Philadelphia, Atlanta, San Francisco, Toronto, or any of our offices located in principal cities. 70589

LINK-BELT *Silverstreak*

*T. M. REG. U. S. PAT. OFF.

SILENT CHAIN DRIVES



Why Textile Mills Should Buy Superior Diesels

1—The average textile mill can save thousands of dollars annually in operating expense through Superior Diesel engines.

2—The textile mill has a steady, high load factor favorable to the highest operating efficiency with Superior Diesel engines.

3—The textile mill needs large quantities of clean, hot water. A large installation of Superior Diesels can supply or help to supply this without any cost, through efficient waste heat recovery from cooling water and exhaust.

4—Superior Diesels can be installed in several units to provide highest efficiency and flexibility with assurance of dependable power supply not equalled by hydro-plants, subject to seasonal water supply, or power transmission lines, subject to vagaries of weather or the whims of unstable labor in central stations.

5—Superior Diesels in the power plant of a textile mill are safe, clean, quiet, and simple to operate.

6—Superior Diesels have no maintenance cost when not generating power. High demand charges and costly factors of steam plant operation are thus eliminated.

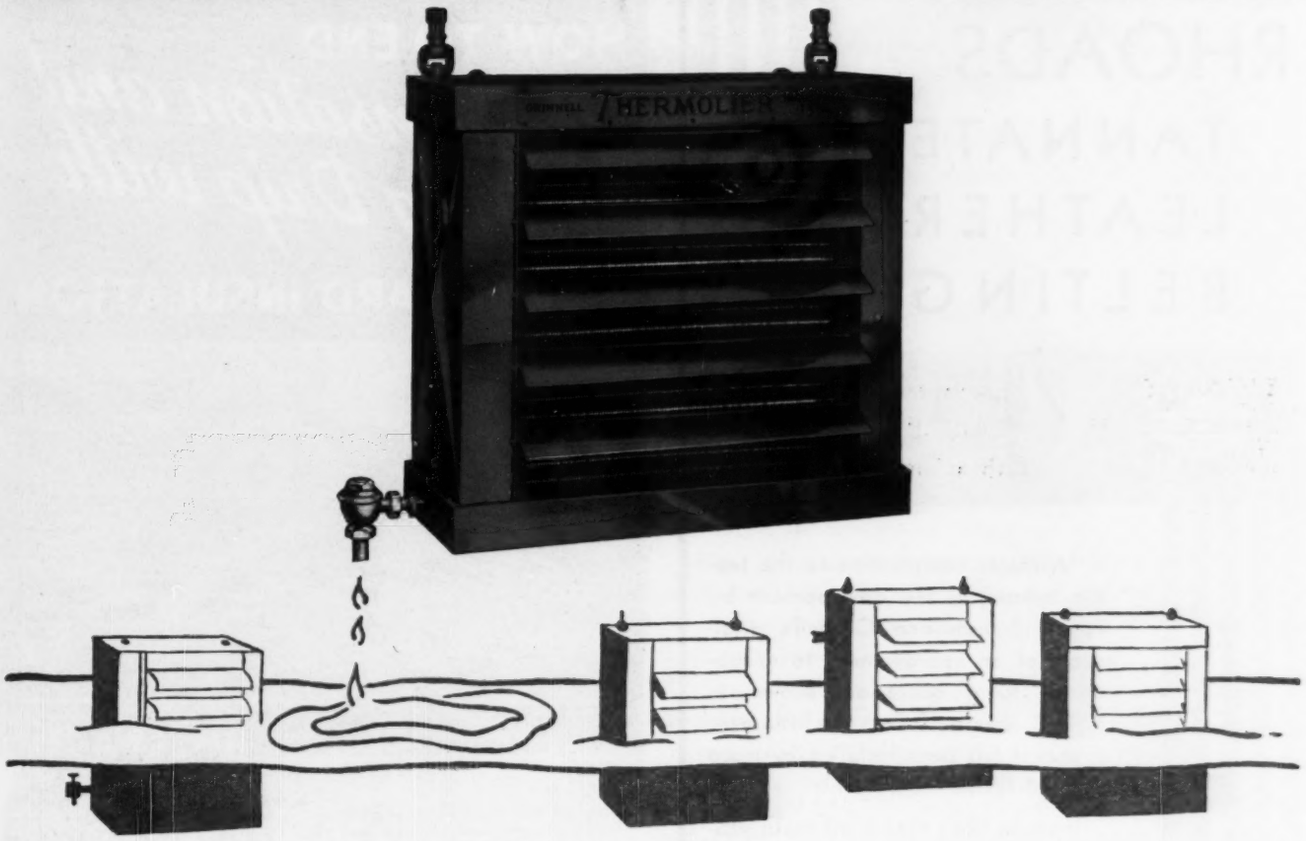
7—Superior Diesels may be purchased, to give all the above and many more advantages, on small cash outlay and several "Pay Out of Savings" plans.

Let us show you how Superior Diesels may serve you. There will be no obligation for a most comprehensive report.

THE NATIONAL SUPPLY COMPANY
OF DELAWARE
SUPERIOR ENGINE DIVISION, SPRINGFIELD, OHIO
LOS ANGELES, CALIFORNIA PHILADELPHIA, PA.

Superior DIESELS

HEAVY DUTY MODELS: 50 to 810 H.P., 250 to 720 R.P.M. • HIGH SPEED MODELS: 15 to 150 H.P., 900 to 1800 R.P.M.



GO *ABOVE* THE "LAZY WATER" LINE FOR YOUR LOW COST HEAT!

EVERY TUBE AN EXPANSION BEND . .

The strain of expansion and contraction is removed from Thermolier — every U-tube is an expansion bend, solidly joined to the header.

The "lazy water" line marks the top of the collected condensation in a unit heater. Thermolier, kept *above the line* by continuous removal of "lazy water," operates at top efficiency with *all* of its heating surface, *all* of the time.

That's one of the big reasons why Thermolier returns substantial savings over other type heating systems. The Internal Cooling Leg that makes this continuous drainage possible is an exclusive feature of Thermolier — one of its 14 points of superiority.

A Grinnell Thermolier will provide a "roomful" of heat wherever you put it . . . eliminate cold corners and hot ceilings. Plan to install Thermoliers now for a productive economical winter! The Thermolier Data Book, free on request, will give you details of advantages and savings. Grinnell Co., Inc., Executive offices, Providence, R. I., Branch offices in principal cities.

GRINNELL THERMOLIER

THE UNIT HEATER WITH 14 POINTS OF SUPERIORITY

RHOADS TANNATE LEATHER BELTING

For More Profits
BELT YOUR ENERGY DRIVE
With a Tannate Belt

"A major contribution to the textile industry is the development by Power Transmission Council's engineers of an improvement to group-driven loom operation, known as P. T. C. 'Energy Drive'. In little over a year it has been installed by more than 80 textile mills."

It seems likely that it will make substantial savings for those who use it.

This new "Energy Drive" adds much to the economical advantages of the Modern Group Drive method; but an important additional saving may be made by using Rhoads Tannate Leather Belting on your loom, spinning frame and other textile drives.

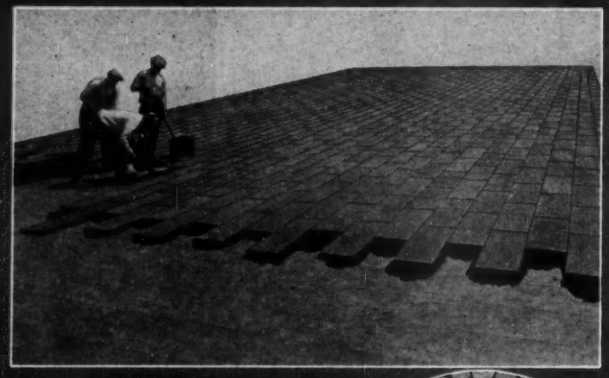
The long life of Tannate Belting and its slight stretch reduce take-up and replacement costs; but of still more importance is its unusual capacity which assures a steady, maximum speed that gives better quality of fabrics and yarns, larger output and lower unit cost. Such is the frequent experience of users of Tannate Belting.

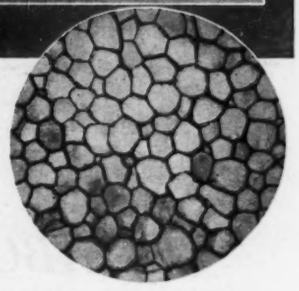
If you have drives that are requiring too much attention or are not giving the possible output, how about asking a Rhoads man to inspect and make suggestions? It may mean added profits for you.

J. E. RHOADS & SONS

Philadelphia, 35 N. 6th St.
New York, 102 Beekman St.
Chicago, 26 N. Clinton St.
Atlanta, 88 Forsyth St. N.W.
Cleveland, 1200 W. Ninth St.
Factory and Tannery, Wilmington, Del.

HOW TO END *Condensation and Ceiling Drip with* CORKBOARD INSULATION





UNDER THE MICROSCOPE *a particle of cork shows thousands of tiny, still-air cells, that form an effective barrier to heat. Armstrong's Corkboard is composed only of pure cork granules, compressed and baked into a strong, solid board.*

ROOF condensation is dangerous. It rots a frame roof structure, and the drip damages materials and equipment below. This threat is ever present in textile mills that operate under conditions of high humidity.

But costly ceiling drip can be checked by insulating with Armstrong's Corkboard. This insulation eliminates the danger by removing the condition that brings it about. Condensation results from warm air coming in contact with a cold ceiling surface. When outside temperatures are low, heat escaping through the uninsulated roof allows the ceiling to become chilled below the dew point. Moisture then condenses on the ceiling. The result is a drip which damages goods and injures equipment.

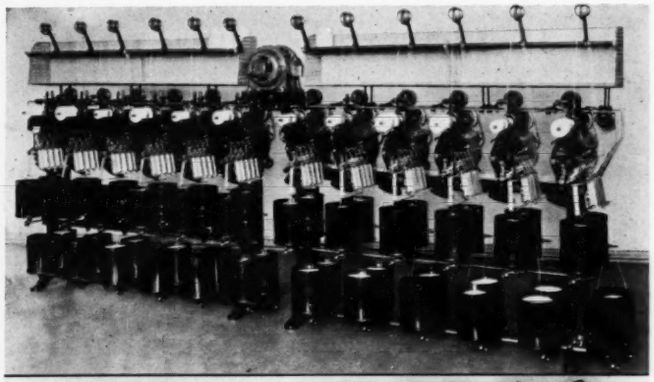
Since heat does not readily pass through cork, a layer of Armstrong's Corkboard on the mill roof presents an effective safeguard against condensation by keeping heat in—keeping the ceiling warm.

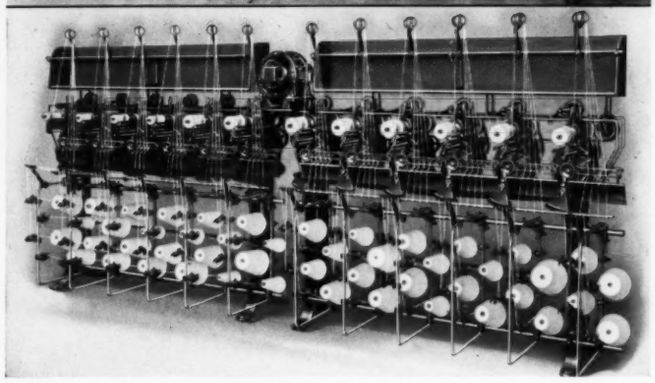
Plan now to end ceiling drip in your mill. Let Armstrong engineers work with you, either in new construction or for remodeling. For information write to Armstrong Cork Products Company, Building Materials Division, 1000 Concord Street, Lancaster, Penna.

Armstrong's **CORKBOARD**
ROOF INSULATION

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation





MULTIPLE-END WINDING

The No. 50 Leesona Winder can be equipped with attachments for winding up to 30 ends in perfect tape form.

When winding up to four ends — especially coarser counts of yarn — it is preferable to use the can supply pictured above. The cans keep the packages separated and prevent the ends from touching as the heavy yarn balloons between supply and tension. The Universal package so produced is usually used as a supply for braiding machines.

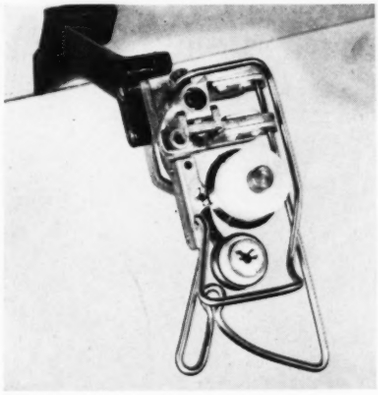
With this supply attachment, the differential tension mechanism is used. When winding full-size packages, this compensates for the variation in yarn speed as the diameter of the winding package builds up.

When winding finer counts, especially small packages of insulating yarns and covering for rubber thread, it is not necessary to have the differential tension. A creel underneath the winding spindles is used to hold the supply packages, and there is a special creel tension for each end. (See illustration below.) This creel can be arranged to hold up to 30 ends for each winding spindle.

Recently there has been an increase in the amount of interest in multiple-end winding of all textile fibers. Our bulletin on the No. 50 Leesona Winder for Sales Yarn illustrates a number of the various multiple-end attachments.

REVERSE-WIND ATTACHMENT

The spindle on the No. 90 Leesona Winder revolves normally in a clockwise direction. When it becomes necessary to wind bobbins in the opposite direction, the reverse-wind attachment is used to reverse the direction of the spindle, causing it to revolve counter-clock-wise.



It is most important for S or Z twist yarns of any textile fiber, to wind them on a spindle revolving in the proper direction — so that when the yarn is drawn off the bobbin in the shuttle, it will be easier to get uniform tension and there will be less chance for the yarn to kink.

Further facts on the No. 90 Winder are contained in Bulletin 101.

PARAFFIN ATTACHMENT FOR ROTO-CONER

At the present time there is an increasing demand from knitters for waxed yarn.

A new combination tension and paraffin disc has been designed for the Roto-Coner which makes it possible to wax the yarn while winding. The illustration shows one application, using the double slub catcher. (The MacColl, or needle-type slub catcher, comes first; then the blade slub catcher.) There is another standard bracket having the single blade-type slub catcher.

For further information about the new Roto-Coner, refer to Bulletin 144.

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

BOSTON - NEW YORK - UTICA - CHARLOTTE - ATLANTA - PROVIDENCE

a forward step..

The Ultimate Consumer strides with confidence . . . rain can't harm her dress . . . muddy-water splashes on her hosiery come off in a rinse . . .

She *buys* with confidence, too . . . from those who handle AQUAROL-processed fabrics . . . silk, acetate, viscose, cotton and wool . . . all truly water-repellent and effectively spot-proofed.

. . . take that step—specify AQUAROL . . . and the consumer will specify your fabrics!

ARKANSAS CO., Inc.
233 BROADWAY NEW YORK

Get **REAL** Water-Repellency . . . Get

aquarol

REG. U. S. PAT. OFF.

FOR: DRESS GOODS · HOSIERY · LINGERIE · SKI CLOTH · UPHOLSTERY FABRICS · DRAPES, ETC.

Spinners are like petals on the daisy. Sometimes they spin. Sometimes they cannot. When they spin they are making money for you—keeping production going. But, sometimes, they have to stop—and clean. Then, they are not spinning.

Take their brushes away. Put them on full-time production, with lintless, mechanical cleaning—the Parks Automatic Traveling Cleaner.

Textile manufacturers have found that with a Parks Automatic Traveling Cleaner, frames are kept cleaner — and at a lower cost. Slugs, gouts, bunches — not to mention breakage, loom stoppage and seconds—are materially reduced.

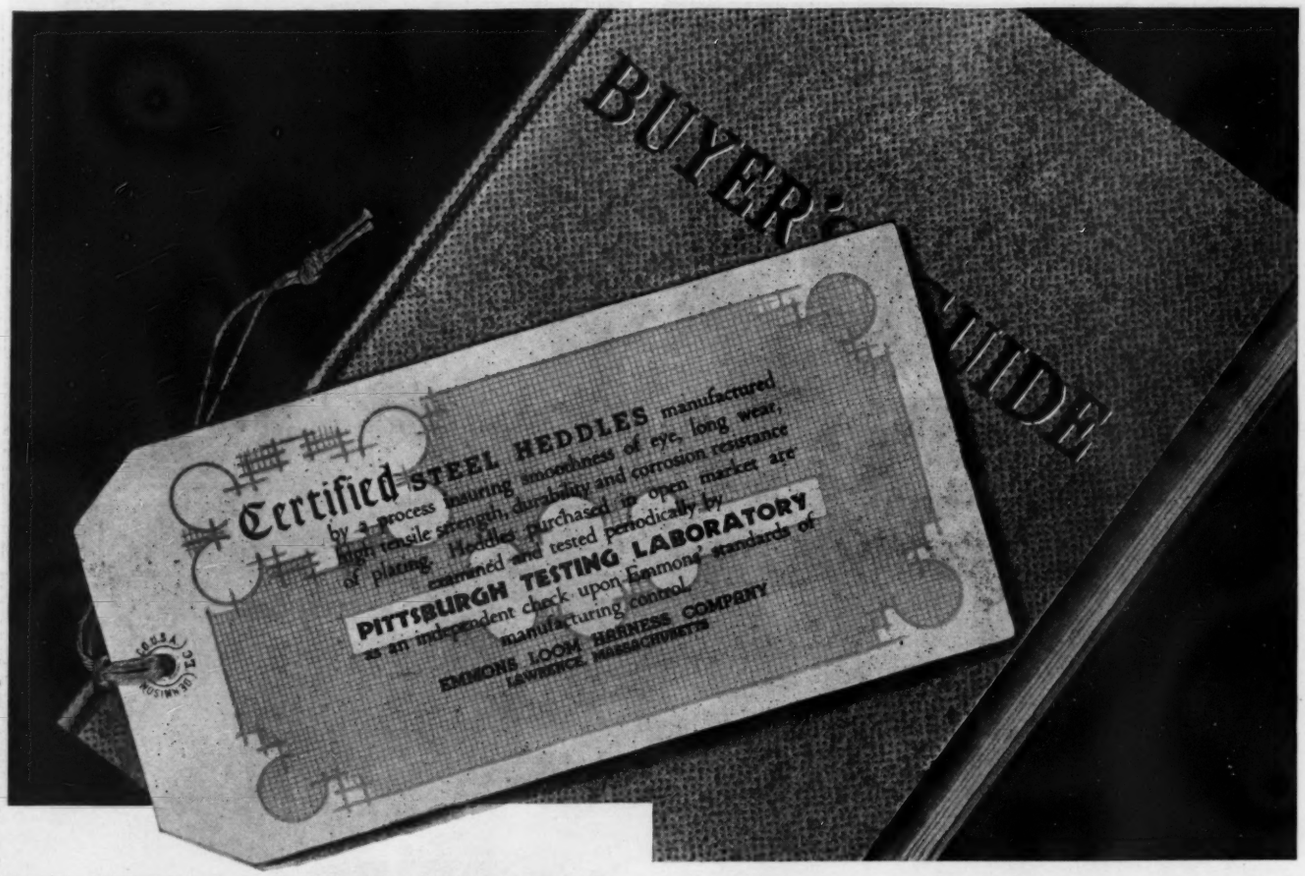
There are two types of Parks Automatic Cleaners. Installation difficulties are avoided. One type, the Parks Turbo Traveling Cleaner is mounted on creel board. The other, the Automatic Bunchless Cleaner is suspended from a single overhead rail. But both are automatic. Both travel as they clean. Both pay for themselves. Send coupon for complete information.

Gentlemen: Please send me Bulletins on Parks Automatic Cleaners ☐
☐ You may have an engineer call
(Please check)

Name .....
Company .....
Address .....
City .....
State .....

PARKS
Traveling Cleaners

PARKS-CRAMER CO., FITCHBURG, MASS . . . CHARLOTTE, N. C.


Certified STEEL HEDDLES manufactured by a process insuring smoothness of eye, long wear, high tensile strength, durability and corrosion resistance of plating. Heddles purchased in open market are examined and tested periodically by
PITTSBURGH TESTING LABORATORY
as an independent check upon Emmons' standards of manufacturing control.
EMMONS LOOM HARNESS COMPANY
LAWRENCE, MASSACHUSETTS

CERTIFIED BUYING GUIDE FOR WEAVERS

The Tag On Each Shipment Of Emmons "Certified" Steel Heddles Is Your Proof That *These* Heddles Are Periodically Tested For All Advantages Contributing To Better Weaving

By buying Emmons Steel Heddles each month *in the open market* and testing them for smoothness, strength, and wear — Pittsburgh Testing Laboratory keeps us . . . and you . . . informed of Emmons manufacturing quality. So far as we know, no other steel heddle manufacturer is doing this to help weavers select the heddles which will improve quality and reduce costs.

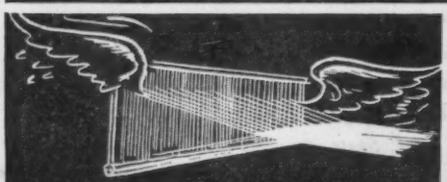
This month's test, like all others, includes thread-wear of the eye (actual count of the number of times the thread passed through before breaking) . . . corrosion resistance and durability of the plating . . . tensile strength . . . micro-photographs of the heddle eyes.

This extraordinary care taken in checking Emmons Heddles is the reason why so many mills are ordering them now. With Emmons you can expect uniform, trouble-free weaving — economically. Be sure to get heddles with the Certified Tag! Your order may be telephoned or telegraphed collect to Emmons Loom Harness Company, Lawrence, Mass.

Emmons

"CERTIFIED" STEEL HEDDLES

"MULTIPLIED YARN SPACE" REEDS



FREE WARP MOVEMENT...BECAUSE THE DENTS ARE ACCURATELY SPACED WITHIN 1-100th INCH. NO STREAKING...BETTER CLOTH

6 SEPARATE POLISHING OPERATIONS MAKE EMMONS DENTS *SMOOTH*. SLUBS, NITS, GOOD KNOTS SLIDE BY EASILY

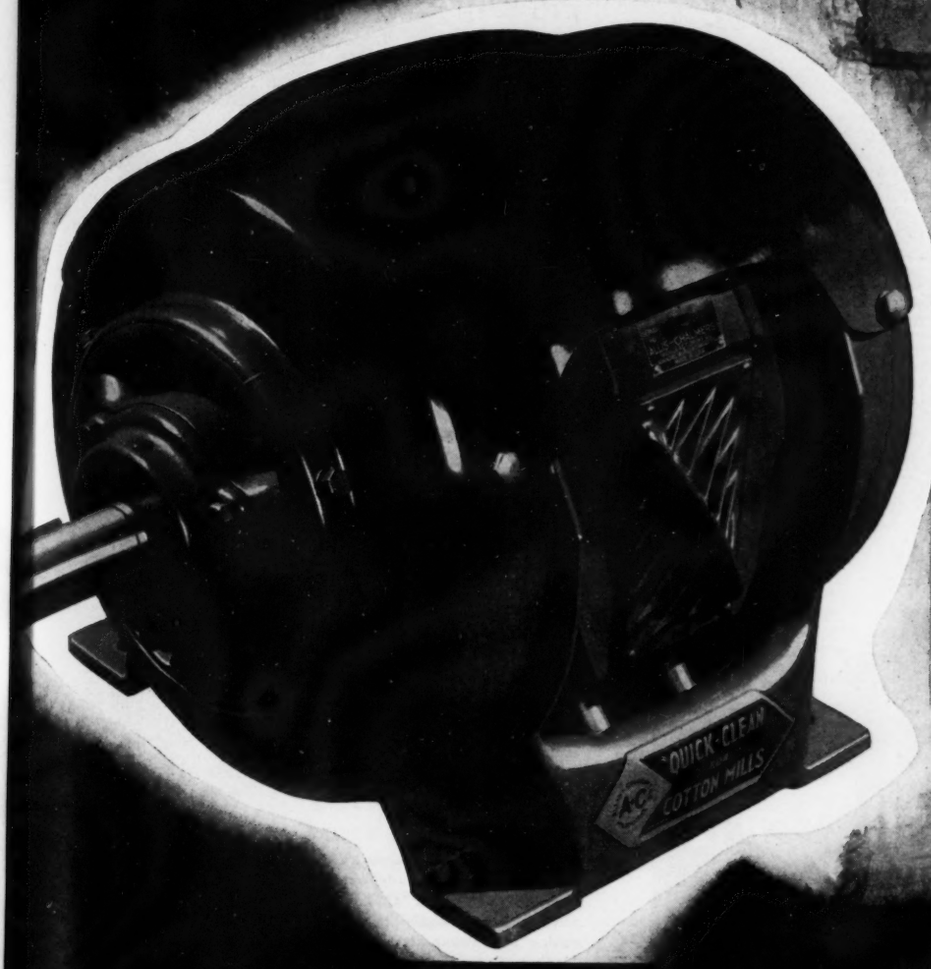
MORE YARN SPACE SO THERE'S LESS DANGER OF ROUGHING OR CUTTING THE YARN

"Certified" Steel Heddles • "Multiplied Yarn Space" Reeds • "Chafeless Cord" Cotton Harness

Described in TEXTILE WORLD YEARBOOK

6841

an *Integral Part* of the TEXTILE INDUSTRY



Allis-Chalmers engineers have definitely solved the problem of lint and dust in textile mills—no longer need motors foul and over-heat, and pile up heavy maintenance costs.

The Allis-Chalmers "Quick-Clean" Motor eliminates all such expense. Designed and built specifically for the Textile Industry, this new motor gives lint and dust so little foothold that they move out as fast as they move in. Big, roomy air passages and glass-smooth surfaces accomplish this—eliminating over-heating.

Down go maintenance costs every time a "Quick-Clean" motor is installed. There are four sizes—5, 7½, 10 and 15 hp. Standard N. E. M. A. mounting dimensions. Write for new bulletin No. 1172.

The Allis-Chalmers Mfg. Co. builds standard motors of every type from 1 hp. up—also motors for special application.

MOTOR DIVISION

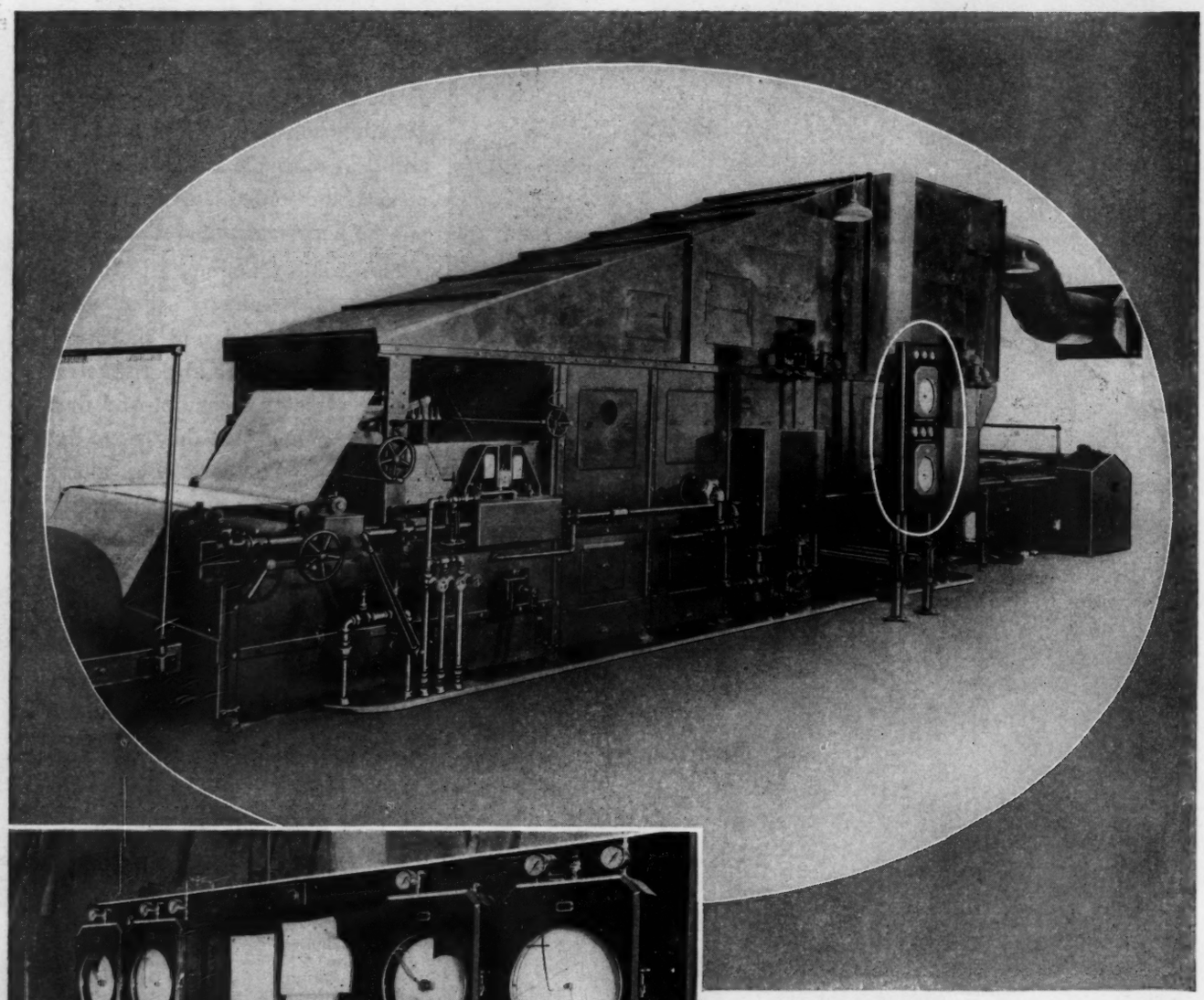
ALLIS·CHALMERS

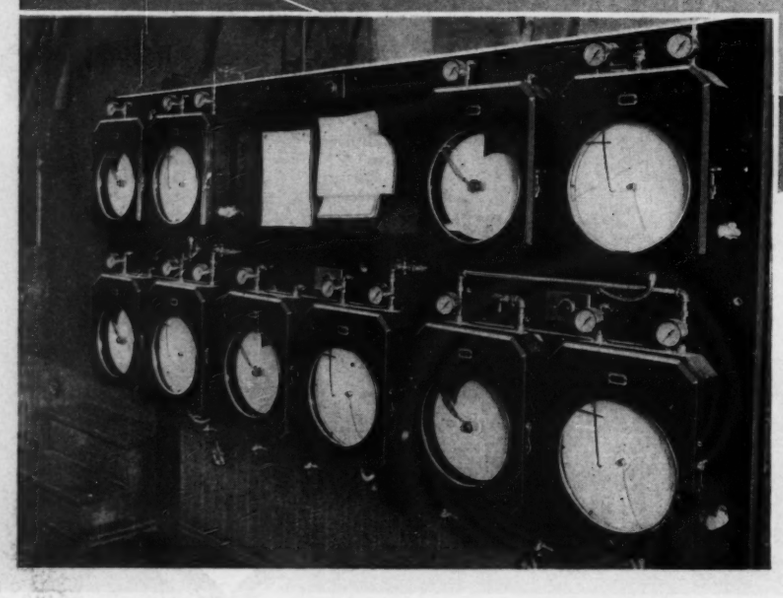
MILWAUKEE WISCONSIN

810

NEW HIGH-SPEED SLASHER

under precision control





General view of condensate side of New Saco-Lowell High-Speed and the panel (in circle) on which are two flush-mounted Taylor "Dubl-Duty" Fulscope Controllers that *regulate* the individual cylinder temperatures. The slasher and automatic temperature control have been developed together to give a completely co-ordinated, unified system for the first time.

• • •

Panel board showing Time Schedule Fulscope Controllers that regulate the time and temperature cycles for the size cooking kettles.

BREAKS EFFICIENCY RECORDS

of unified Taylor system

TIME-PROVED TAYLOR TEMPERATURE CONTROL IS A BUILT-IN AND ESSENTIAL PART OF THE HISTORY-MAKING NEW SACO-LOWELL SLASHER

Never before has automatic control been engineered to produce such results as here — in increased production . . . more uniform sizing . . . higher machine efficiency . . . and greater savings in size, cotton, and "seconds"

NOW you can install a complete, unified, high-speed slashing system into which complete, unified temperature control has been built as an integral part.

Taylor engineers, working closely with Saco-Lowell during the development of the new Saco-Lowell High-Speed Slasher, have co-ordinated temperature control into the process to a degree never attained before. In fact, automatic precision control as exercised by the Taylor System, from cooking of the size to the properly conditioned yarn, is a necessity on this new slasher. The results assure a remarkable uniformity in yarn quality, large savings in size, yarn and cotton, and more than doubled production from fewer slashing units. You get more uniform size penetration and better retention of solids. You gain resulting greater uniformity in cloth weights and increased weave-room efficiency. Correct control of moisture content follows as a natural result of perfect co-ordination of the entire Taylor Control System.

WHERE TAYLOR CONTROL DOES ITS WORK. The system starts at the size kettles. A fully automatic Taylor Fulscope Controller maintains the predetermined cooking schedule and keeps a record of each cook so that it can be duplicated exactly at any time.

The storage kettle is also under Taylor automatic temperature control. On the slasher, Taylor Instruments guard temperature and liquid level in the size box.

Taylor Control of cylinder temperatures operates on the temperature of the condensate. An exclusive feature of this control as installed makes possible a temperature gradient as the yarn passes to the successive cylinders, assures retention of required moisture in the yarn, and keeps it elastic and pliable. The Taylor Fulscope Controller is the heart of temperature regulation at the cylinders.

But the full record of automatic control on the Saco-Lowell High-Speed Slasher is one of perfect balancing and co-ordination by Taylor Engineers of the various steps in the process—a completely engineered job which has resulted in the successful operation of Taylor Slasher Control wherever it has been installed over a period of more than ten years. Whether you have this remarkable new slasher development in your mill or whether you operate the slower type of machine, you can rely on engineered Taylor Control to maintain the uniform high quality of yarn, eliminate seconds, and make possible many savings.

For full information regarding this greatest development in slashing in fifty years, write Saco-Lowell, 147 Milk Street, Boston, Mass. For complete data on Taylor Automatic Slasher Control for *any* slasher system, ask a Taylor Representative, or write to Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

Taylor

Indicating · Recording · Controlling

TEMPERATURE, PRESSURE, FLOW *and* LEVEL INSTRUMENTS

THE SMILING PROTECTOR OF YOUR PROPERTY!

Copr. 1937 Pittsburgh Plate Glass Co.

LOOK for the smiling sunny face that identifies every can of Pittsburgh Paint. This trademark means greater protection for you. Pittsburgh Sun-Proof Titantic Outside White will safe-guard your buildings from the destructive forces of nature...and impart sparkling beauty.

Painting is a sound investment. You not only increase the attractiveness of your plant, but add immeasurably to its value as well. Pittsburgh Sun-Proof Titantic Outside White comes in both liquid and semi-paste form. Both contain Titanium, blended skillfully with other pigments to provide superior weather resistance. But no matter which you choose, you are sure of a whiter, longer-lasting finish. This durable, economical paint has *two-thirds more hiding power,* than ordinary brands.

Make this test. Compare Pittsburgh Sun-Proof Titanic Outside White with other paints. You will be amazed at its brilliant, glistening finish. Beside it, ordinary whites look dull, lifeless. Specify Pittsburgh Sun-Proof Titantic Outside White on your next job. Painting Contractors will enthusiastically endorse your choice.

Pittsburgh Plate Glass Company, Paint Division, Pittsburgh, Pennsylvania.

Pittsburgh carefully guards each step in the manufacture of its paints, thus insuring uniformity of quality. Each Pittsburgh paint passes strict laboratory tests for quality.

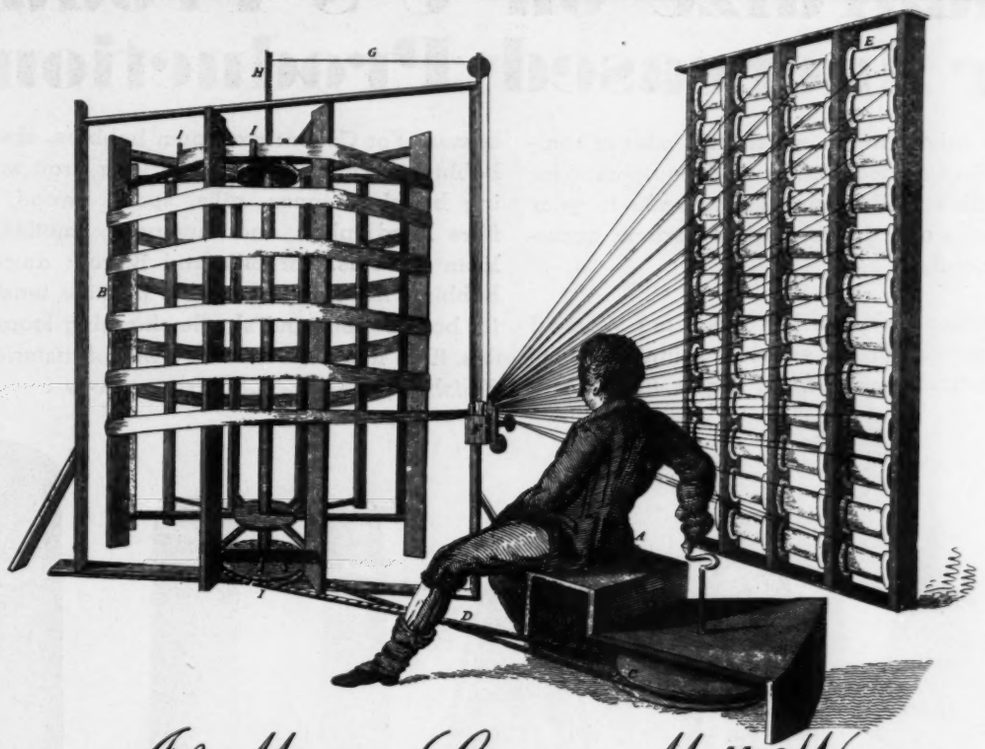
USE VITOLOIL FOR THINNING EXTERIOR PAINTS!

Pittsburgh's great development—Vitoloil—is a specially processed vegetable oil for thinning exterior semi-paste and liquid paints. Vitoloil controls penetration into new or old surfaces, providing a bond equal to raw linseed oil, but seals much more securely. It produces a smoother, more uniform film, levels off better, eliminates brush-marks, prevents breakdown of paint and improves color retention.

PITTSBURGH PAINTS

Smooth as Glass

COMPLETE LINE OF STRUCTURAL MAINTENANCE FINISHES



If Modern Cotton Mills Were Operated Like This—

. . . there would have been no need to develop

NOPCO B.C.K. for Quicker, Better Yarn Conditioning!

UNTIL the development of high speed cotton manufacture, there was no need for rapid, economical conditioning of yarn. Mills were once content to let yarn pick up its own normal moisture content—and let it take its own time.

Today, however, it's a different story. Quantities of idle spun yarn represent a big investment . . . and the possibility of spoilage through mildew remains a dangerous risk.

To meet modern conditions, Nopco laboratories have developed NOPCO B. C. K.—a rapid, safe conditioner. Here's what this new, economical product will do for you:

1. Insure rapid penetration, wetting out.
2. Prevent mildew.
3. Give better delivery.
4. Impart better knitting qualities.
5. Eliminate use of steam.
6. Reduce static electricity.

We have prepared a special 4-page bulletin discussing the subject of cotton yarn conditioning—and giving full details on this new product. Use the coupon below today to get your copy. There is no obligation, of course.

NATIONAL OIL PRODUCTS CO.
HARRISON, N. J.
Please send me without obligation full details on Nopco B. C. K.

Name _____

Company _____

Street _____

City _____ State _____

C-9

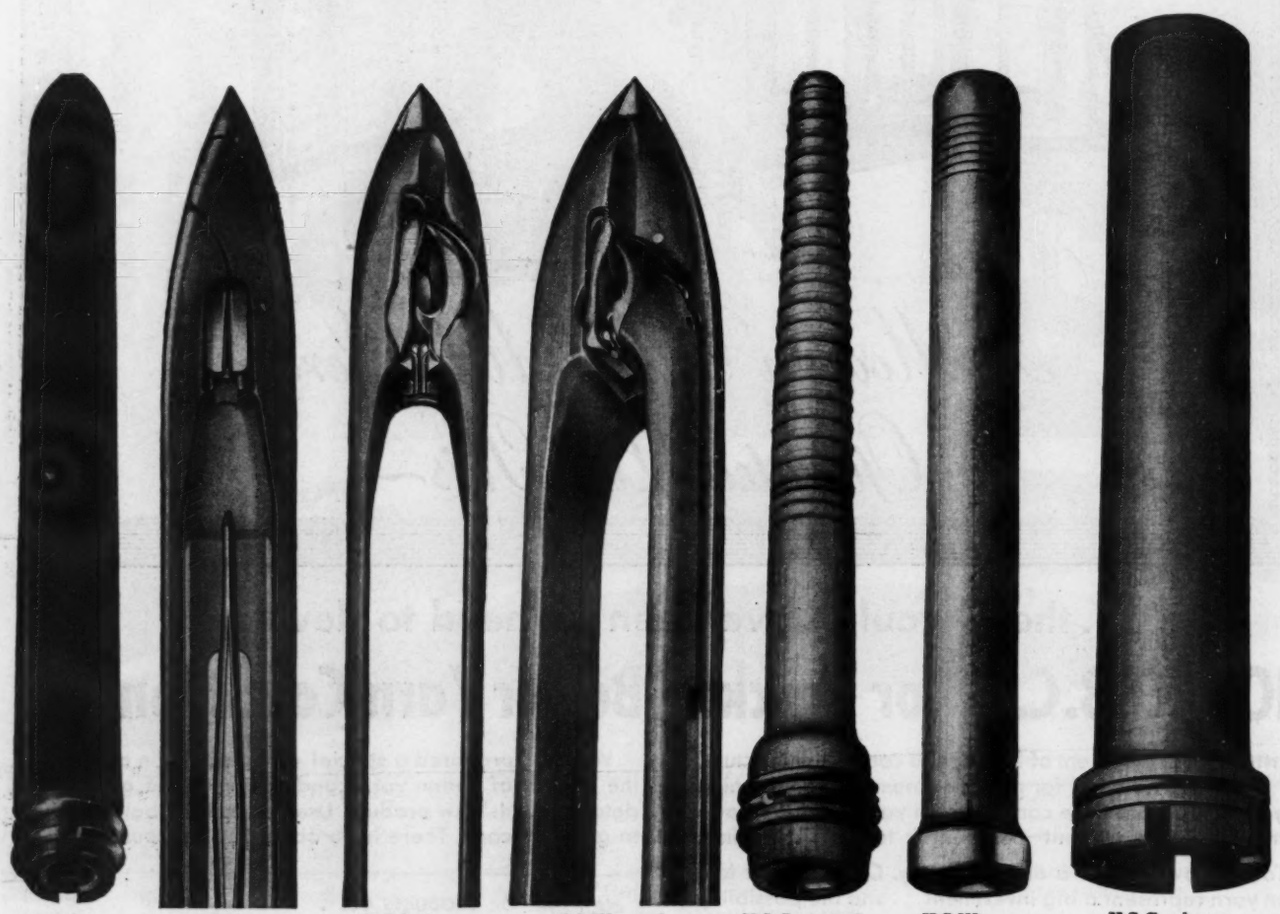
NOPCO

NATIONAL OIL PRODUCTS CO.
HARRISON, N. J.
BOSTON CHICAGO CEDARTOWN, GA. SAN FRANCISCO

Standardize on U S Products for Increased Production!

U S is the only concern which can offer a complete line of accessories and equipment for every type of fibre. All products are made to your own specifications and guaranteed to perform accurately and efficiently.

The complete line includes: For Wool and Worsted —plain and positive tension shuttles, spinning, twisting and automatic loom bobbins, spools for all processes. For Cotton: cardroom bobbins, skewers, warp bobbins, special bobbins for long draft spinning, filling bobbins, cones, rolls, spools (wood, metal and fibre head) plain and automatic shuttles, automatic loom bobbins. For Silk and Rayon: automatic loom bobbins, flat bobbins, quills, positive tension shuttles for both bobbin and shuttle-changing looms, flat shuttles, fibre head spools. *All types of material available. Finishes for all conditioning purposes.*



U S Flat Bobbin | U S Unit Tension Shuttle | U S Jackson Tension Shuttle | U S Worsted Tension Shuttle | U S Automatic Loom Bobbin | U S Warp Bobbin | U S Cardroom Bobbin

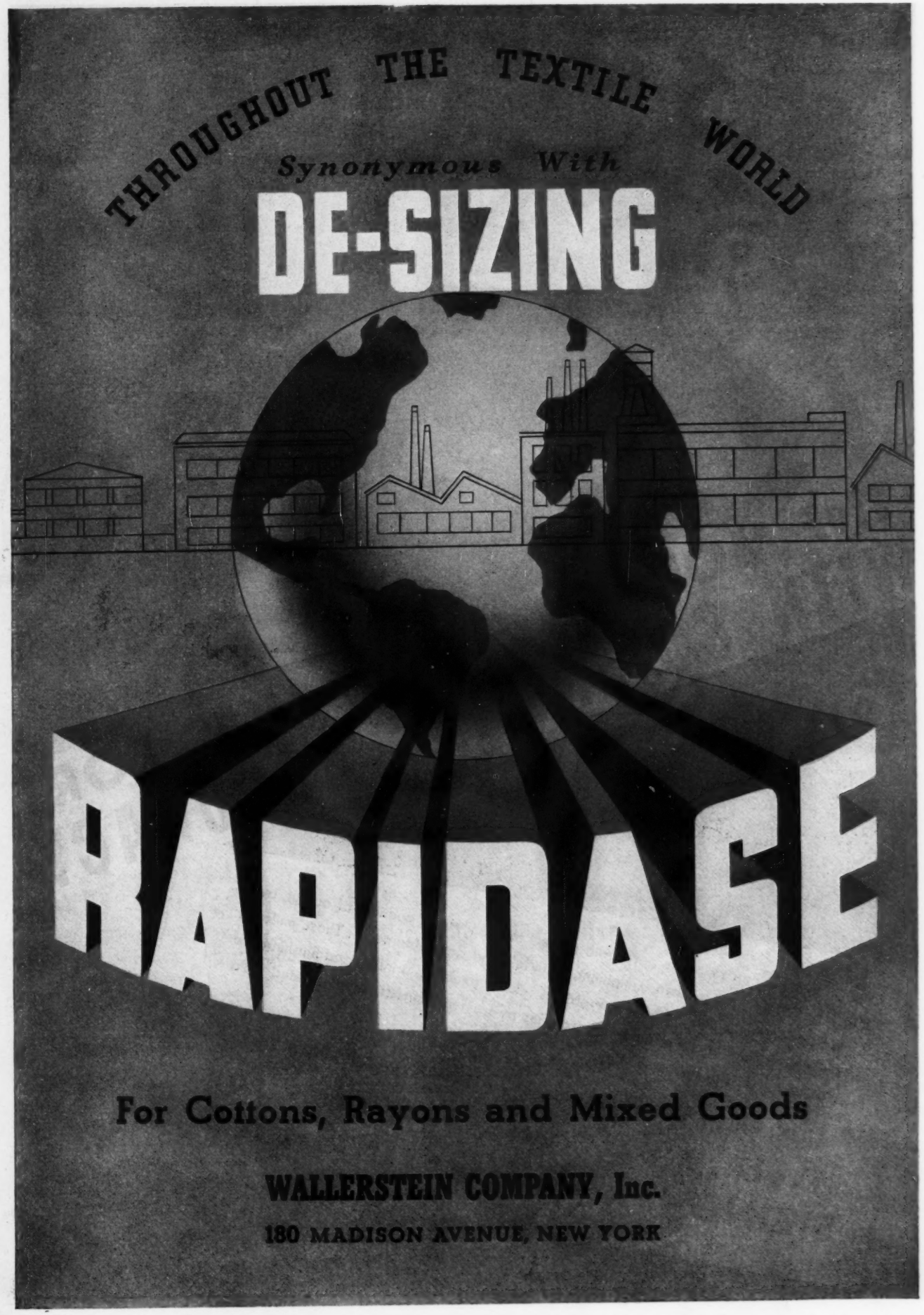
Ask the nearest office for full particulars.

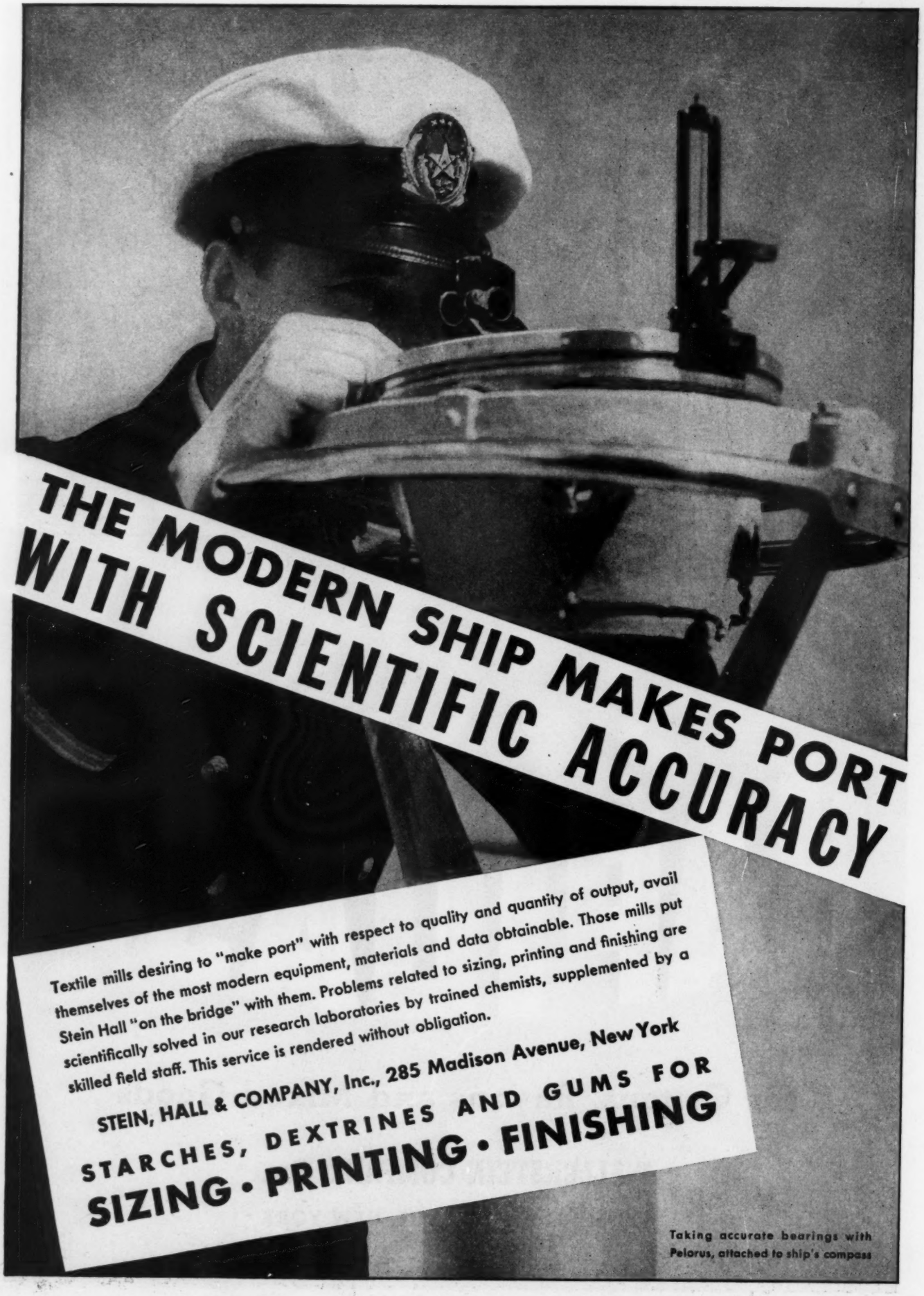
U S Bobbin & Shuttle Co.

MONTICELLO, GA.

Charlotte, N. C., Greenville, S. C., Johnson City, Tenn.

BETTER BOBBINS • SPOOLS • CONES • SHUTTLES


THROUGHOUT THE TEXTILE WORLD
Synonymous With
DE-SIZING
RAPIDASE
For Cottons, Rayons and Mixed Goods
WALLERSTEIN COMPANY, Inc.
180 MADISON AVENUE, NEW YORK



THE MODERN SHIP MAKES PORT WITH SCIENTIFIC ACCURACY

Textile mills desiring to "make port" with respect to quality and quantity of output, avail themselves of the most modern equipment, materials and data obtainable. Those mills put Stein Hall "on the bridge" with them. Problems related to sizing, printing and finishing are scientifically solved in our research laboratories by trained chemists, supplemented by a skilled field staff. This service is rendered without obligation.

STEIN, HALL & COMPANY, Inc., 285 Madison Avenue, New York

STARCHES, DEXTRINES AND GUMS FOR

SIZING • PRINTING • FINISHING

Taking accurate bearings with Pelorus, attached to ship's compass

TUBIZE ACETATE RAYON

Already the talk of the trade!

★

Tubize took its time before starting to make its new acetate rayon. Experimenting. Improving. Perfecting. Putting the yarn through tough performance tests in leading mills, under severe working conditions.

Tubize Acetate "took it". . . Here's what happened:

One key mill, operating 1500 looms, reported: "You know how particular we are in all our operations. The new Tubize Acetate Rayon has proved highly satisfactory in all processes of fabrication."

A large-volume mill, specializing in popular-priced rayon goods, told us: "Tubize Acetate Rayon is exceptionally uniform. Since using it, we find our loom efficiency runs in the high 90's."

Tubize Acetate in limited quantities is available now in 120 and 150 deniers, on cones in dull only.

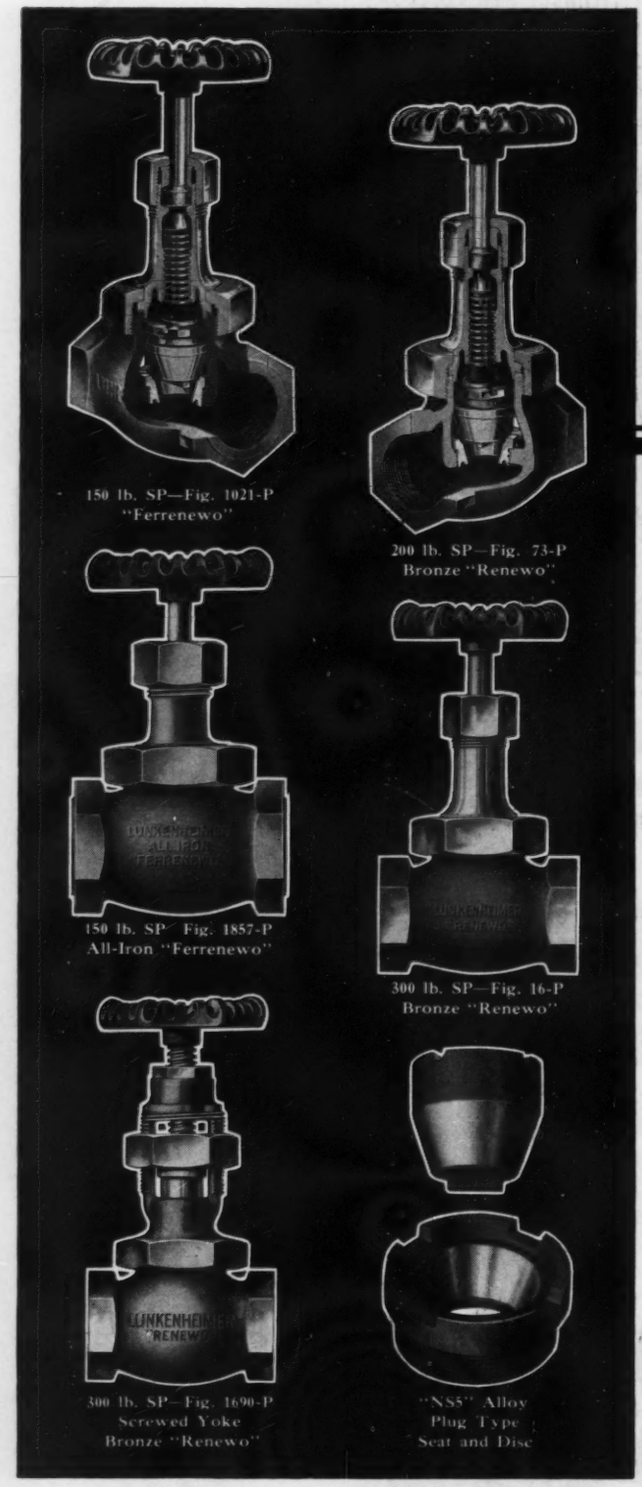
TWO PARK AVENUE, NEW YORK CITY

TUBIZE Chatillon CORPORATION

PLANTS: HOPEWELL, VA. AND ROME, GA.

Rayon Yarns · Knitted Fabrics

To Meet the Trend Toward Wider Seat Faces



And to provide the proper valves for various pressures, Lunkenheimer offers a complete line of plug type seat and disc valves as illustrated, for steam pressures from 150 lb. to 300 lb.

The seats and discs have wide, uniform bearing contacts, accurately machined and carefully lapped to insure a perfect fit. The wide seating surface reduces the effect of wire-drawing and promotes longer service.

The "NS5" Alloy from which the seats and discs are made has exceptionally fine wearing properties, high corrosion resistance, will not gall, seize or lose its original hardness.

Install Lunkenheimer plug type valves and profit by the trouble-free, low-cost service you will experience.

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

Buy QUALITY—Buy LUNKENHEIMER

SPOTS before your eyes?

When there are "resist spots" on your dyed goods, it isn't liver trouble. Ten to one it is hard water in your boiling off, scouring or degumming units.

Perhaps you don't think the water you use is bad. You may have had it analyzed. But don't forget that the hardness of water varies from day to day in many localities. It may be okay today, worse tomorrow and seriously damaging to your process the day after.

That is one of the advantages of Permutit Water Conditioning. A Permutit installation keeps the water at zero hardness continuously, no matter how the hardness of the incoming water varies. At the same time, dirt and other suspended impurities can be completely removed. Water hardness and turbidity are eliminated from your operating equation.

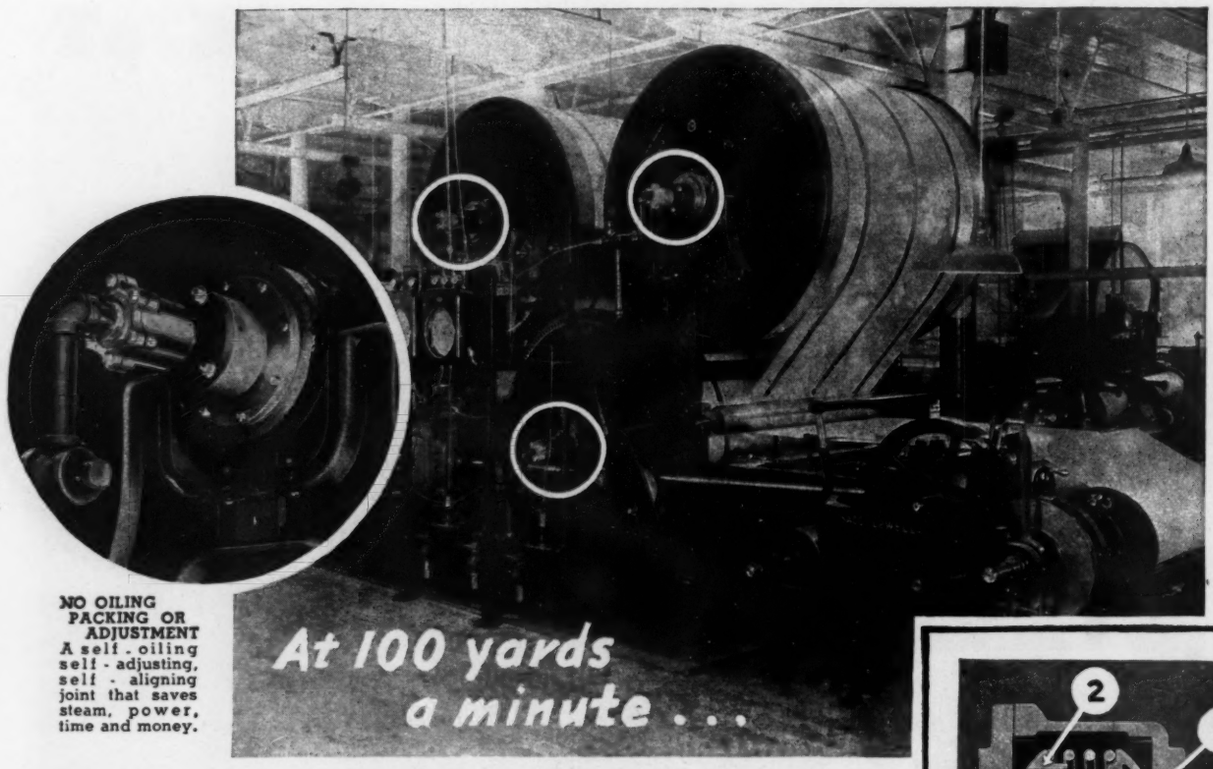
Other phases of Permutit Water Conditioning provide for removal of iron, oil or bad color. Also, if desired, bad odor or taste can be eliminated. Don't forget, too, that Permutit equipment substantially reduces steam production costs by promoting combustion efficiency, heat absorption, economical blowoff, heat recovery, lower boiler outage and lessened maintenance expense.

Let us refer you to other cotton, wool, silk or rayon mills now saving large sums annually through the use of Permutit equipment. Write for the names. And ask for Permutit technical bulletins especially prepared for textile mill executives and technicians. Please address your inquiry to The Permutit Company, Dept. B-1, 330 West 42nd Street, New York, N. Y.

Permutit

WORLD'S LARGEST SPECIALIST IN

Water Conditioning



NO OILING PACKING OR ADJUSTMENT
A self - oiling self - adjusting, self - aligning joint that saves steam, power, time and money.

Only the BEST Stuffing Box is GOOD ENOUGH!

WHEN a slasher handles a hundred yards of warps a minute it's about as big news as if a man sprinted a hundred yards in 9 seconds flat—so this new Model 36 Saco-Lowell Slasher deserves to be front page news in the textile industry.

To maintain this swift pace while producing warp of good weaving qualities, calls for a fine control of stretch, winding, and (not the least important) *drying*.

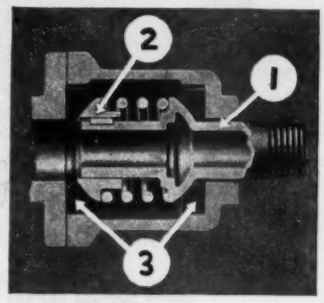
That is why Johnson Rotary Steam Joints have been chosen for this critical service. The mounting of the joint on this particular Rayon Slasher is shown in the close-up illustration above, and the details of joint construction are briefly described and illustrated opposite. The joint totally eliminates all packing, oiling, adjustments and complications; and it cuts maintenance costs to an almost incredibly low level.

In the six years since they were introduced, Johnson Joints have replaced literally thousands of old style packing boxes on slashers, dry cans, calenders and Sanforizers, and they are now furnished as standard and original equipment by all large textile machinery manufacturers.

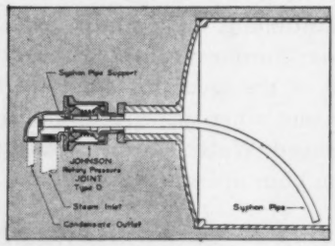
The Johnson "Speed Heet" method of draining the cylinders of certain types of slashers, sanforizers, etc., is illustrated opposite. With this method of drainage, the air, gas and condensate are forced out through the syphon pipe to a non-air binding trap as soon as the steam is admitted. This quick and constant elimination of not only condensate, but air and gas as well, assures quick heating of the cylinders when starting up, and permits the high, even temperature required for a fast rate of operation.

Still another type of Johnson "Speed Heet" system with rotary syphon pipes is available for five and seven foot slashers to which the single, stationary syphon pipe drainage method diagrammed opposite is not adaptable because of the tie rods used in the large cylinders. Ask for bulletins describing the Johnson Joint in detail. With it we will send a special bulletin describing its application to textile service.

THE JOHNSON CORPORATION, 815 Wood St., Three Rivers, Mich.



The Joint The basic construction of the Johnson Joint is shown above. The rotating member consists of two parts; the nipple (1) which is attached to the drying roll, and the thrust collar (2) which slides over the nipple end-ways, but is keyed to it so they rotate together. Both of these parts seat against the carbon graphite rings (3). The ring at the right forms the seal, and as pressure increases within the joint, the seal naturally increases; so the joint is self-adjusting. The ring at left acts as a bearing surface. By using rings of a special carbon graphite, which is a natural lubricant, oiling is eliminated. The ball-and-socket form provides for angular misalignment, and annular space between the nipple and housing provide for lateral misalignment.

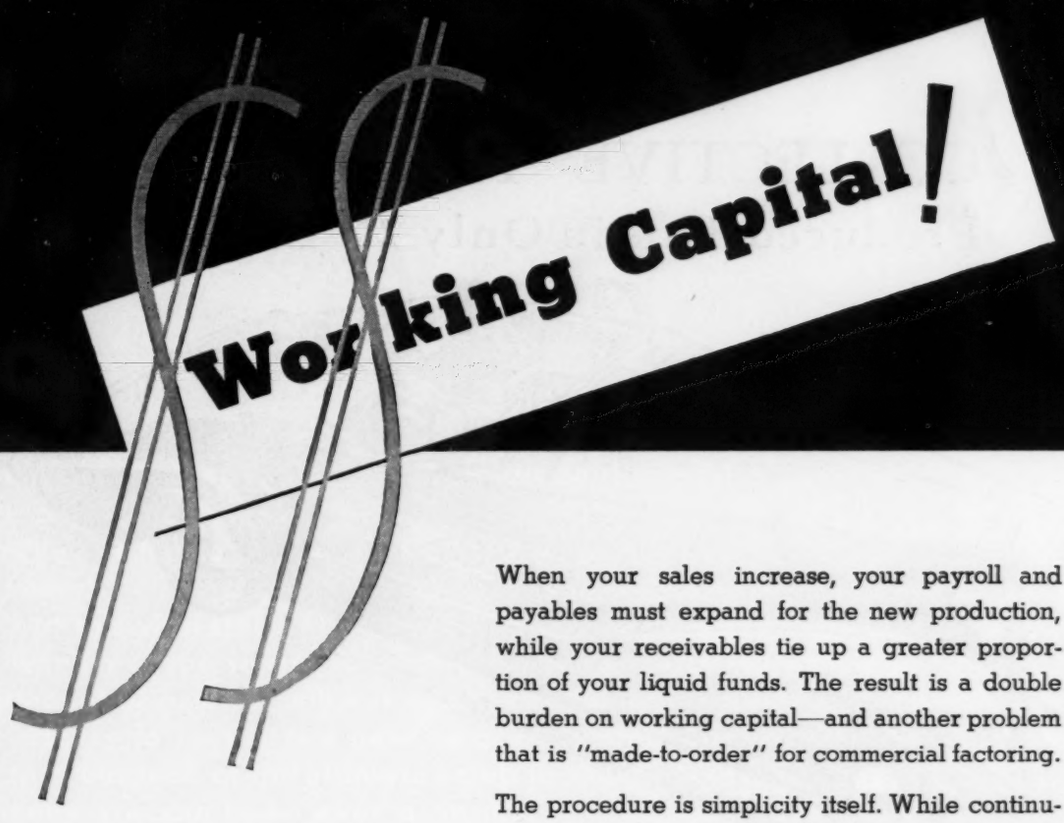


The Method The "Speed Heet" method consists of supplying steam to the cylinder, and removing air, and condensate, through the same Johnson Joint as shown in the drawing above. Ask for bulletin suggesting various simple, practical ways of applying this method to existing drying equipment.

Write for **NEW BULLETIN**

Johnson
Rotary **PRESSURE JOINT**

When Progress Puts a **Double Burden** on



When your sales increase, your payroll and payables must expand for the new production, while your receivables tie up a greater proportion of your liquid funds. The result is a double burden on working capital—and another problem that is "made-to-order" for commercial factoring.

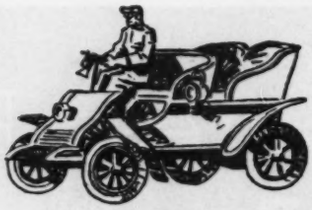
The procedure is simplicity itself. While continuing to grant regular terms to customers, you merely discount your receivables and thus keep all your capital hard at work. Substantial economies are effected too—your bookkeeping costs are reduced, credit-checking and collection expense is eliminated and you are protected against credit losses.

Let us consider your specific problem

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828
Schefer, Schramm & Vogel Established 1838
Peierls, Buhler & Co., Inc. Established 1893

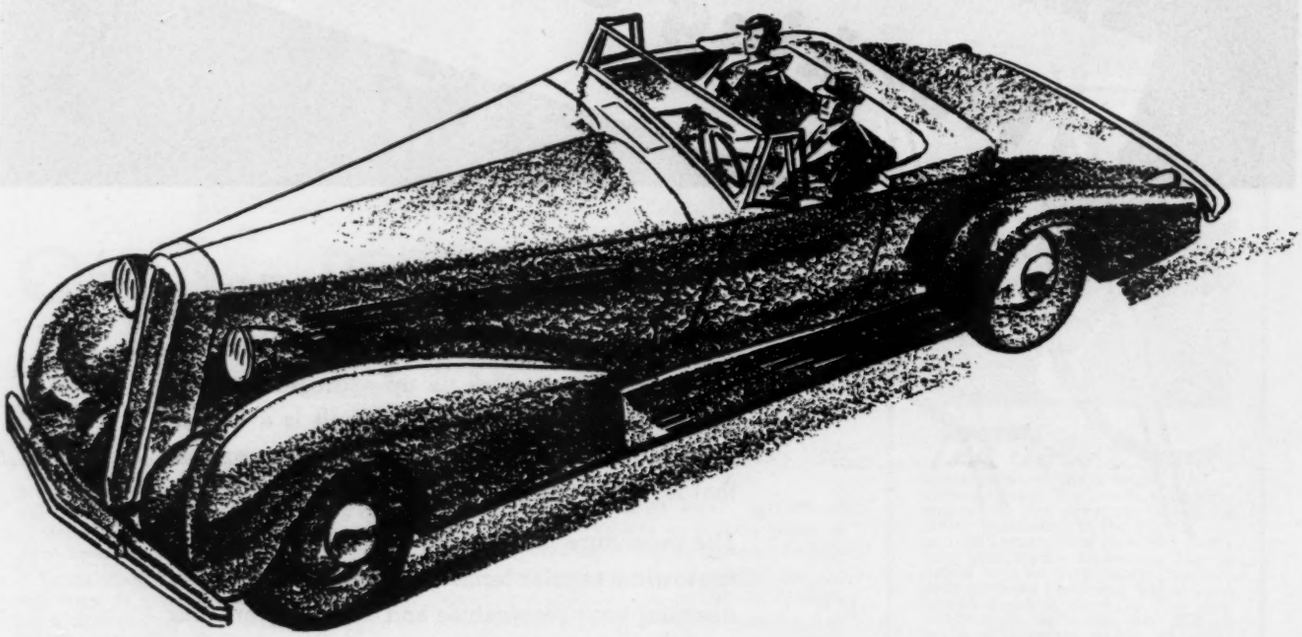
TWO PARK AVENUE, NEW YORK



It Took Individual Thinking 140 Years to Produce This;

COLLECTIVE THINKING

Produced This in Only 27 Years



By the individual and isolated effort of scores of inventors over a period of about 140 years the automobile by slow stages of development finally reached the point when it was a practical method of transportation. Then the automobile industry discovered COLLECTIVE THINKING and its progress in the 27 years that have followed has been one of the marvels of the age.

Textile finishing can also utilize collective thinking with equally important results. In fact collective thinking is highly essential in textile finishing today because the multiplicity of problems created by new fibres and style changes require a breadth of knowledge and experience that is seldom given to one man or even to one organization. Furthermore, delivery requirements demand prompt solution of these problems.

Collective thinking in connection with sizing, printing and finishing problems is available even to the smallest textile unit through A-H Consultation Service. This service is rendered free of charge by a staff of specially trained chemists assisted by a completely equipped modern laboratory and a company experience of 122 years.

Write and tell us your problem or ask our nearest representative to call.

Arnold, Hoffman & Company, Inc.

Established 1815—Plant at Dighton, Mass.

PROVIDENCE, R. I.

New York . Boston . Philadelphia . Charlotte

A-H CHEMICALS

Sizing and Finishing Gums and Compounds • Soluble Gums • Softeners • Soluble Oils • Tallow • Waxes • Soaps • Flour Dextrines • Starches • Pigment Colors and Lakes • Ammonia Acids • Blue Vitriol • Borax • Bichromate of Soda • Bichromate of Potash • Liquid Chlorine • Chloride of Lime • Caustic Soda (solid or flaked)

A Loom Is No Better Than Its Harness

No matter whether your looms are old or the most modern obtainable, their ultimate capacity will never be achieved if you equip them with inferior harness equipment.

It is at this vital stage of production that the *quality* and *quantity* of the weave is determined — and with it the amount of profit it will net you.

Do not try to save a few pennies per frame on the first cost, but look at the ultimate result in the amount of money *you can make* over a period of time with real honest equipment built for durability and only embodied in STEHEDCO Loom Harness.

When in need of harness frames, it will pay you to remember that —

THERE IS NONE SO DURABLE • SO EFFICIENT • SO ECONOMICAL AS

QUALITY LOOM HARNESS EQUIPMENT

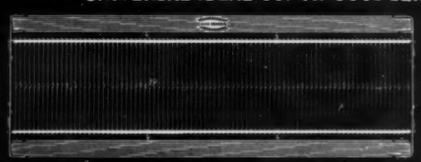
Stehedco

EXPERIENCE-BUILT · TOP-NOTCH PRODUCTION

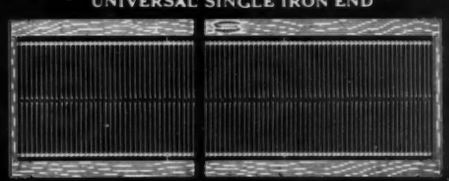
FRAMES

UNIVERSAL DOUBLE IRON END

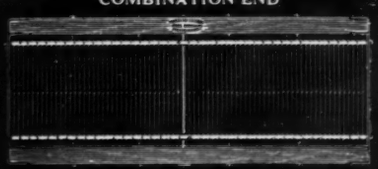
UNIVERSAL IDEAL CONTINUOUS SLIDE



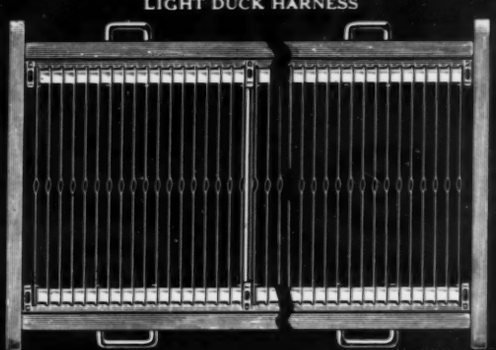
UNIVERSAL SINGLE IRON END



COMBINATION END



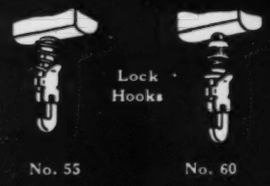
LIGHT DUCK HARNESS



MASTER DUCK HARNESS

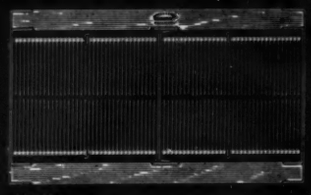
DOUBLE BAR PLUSH AND VELVET

ALSO — UNIVERSAL IDEAL DOUBLE BAR · DOUBLE STAGGERED BAR · ARTEX · WORSTED AND UNIVERSAL FRAMES

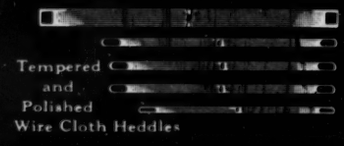


Lock Hooks

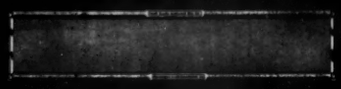
No. 55 No. 60



UNIVERSAL DOUBLE IRON END

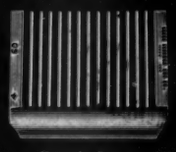


Tempered and Polished Wire Cloth Heddles



Pitch Band Reed
Custom Made to Suit Requirements

Tempered and Polished Steel Pile Gauges



Comb Reed

No. 90 Lock Hook Bolted Type

No. 75 Lock Hook Screw Type

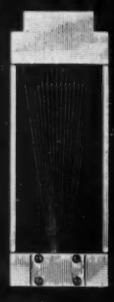
Creel Tension Weights

Flat Steel Heddles
For Every Woven Material

Repair Heddles of Every Type

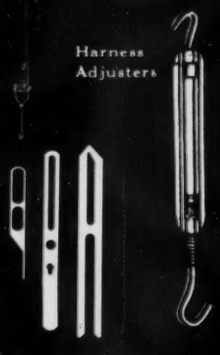
All-Metal Reeds

Selvage Harness



Special Reeds

Harness Adjusters



Drop Wires

QUALITY LOOM HARNESS EQUIPMENT

The Stehedco Super Excellence

TRADE MARK

The durability of *finish* and *construction* of every item is *unsurpassed.*

The superlative *smoothness* and *polish* is the *best* that can be obtained.

The workmanship is of the *very highest* order.

The scientific design is such as *only* many years of *original* thought, effort, and experience can produce.

This super excellence is back of every single STEHEDCO product purchased *anywhere* at *anytime*—and is made possible only by the *unequaled* rigid and strict tests and requirements that *constantly* check every vital stage of production.

The preeminent position of STEHEDCO Equipment in the Textile field is a tradition and source of great pride with us, and we are exceedingly careful that it be maintained.

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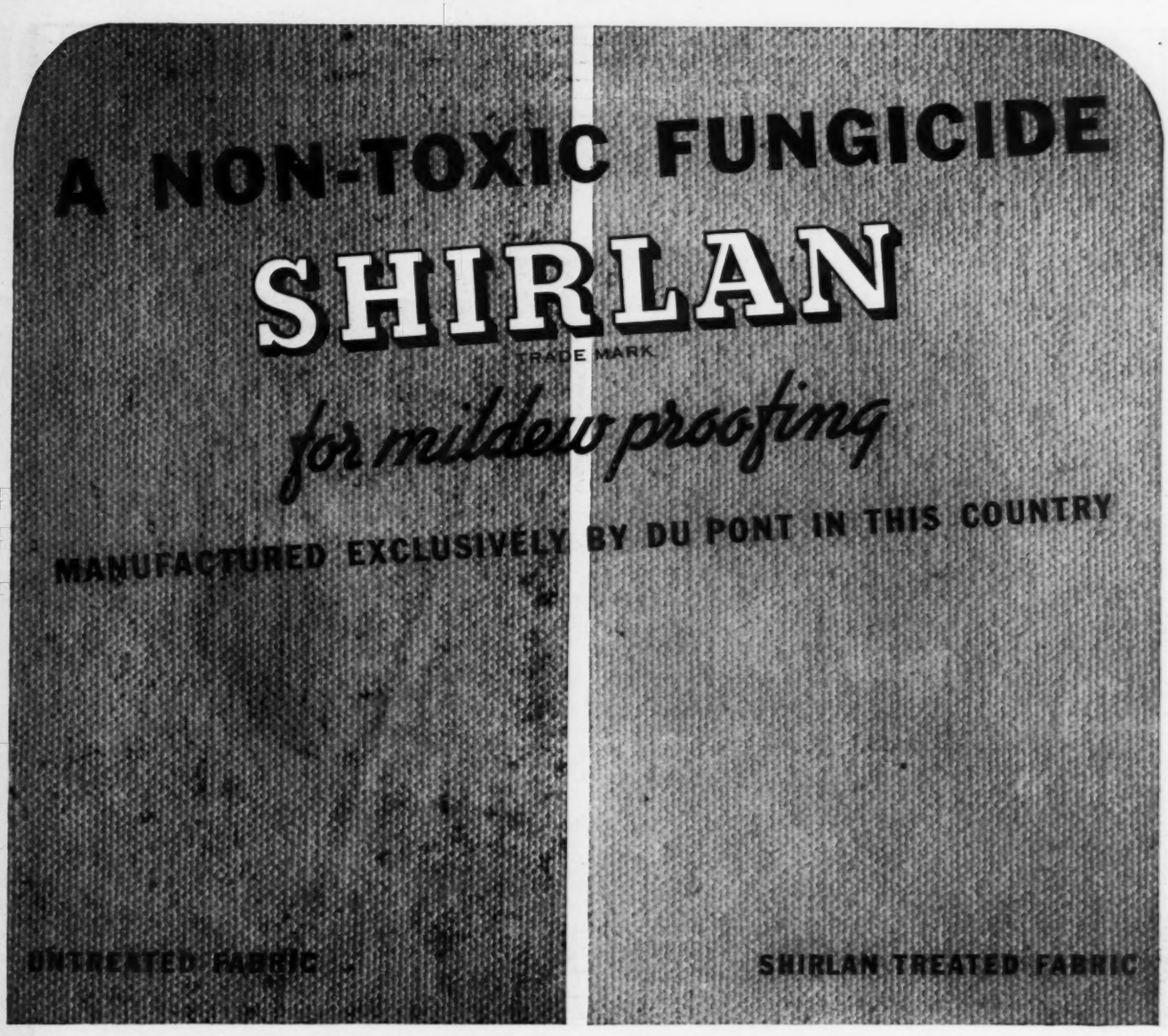

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The illustration is an unretouched photograph of ten-ounce duck exposed for four months to the weather and tested for mildew resistance. Untreated fabric at left. Note clean appearance of fabric treated with "Shirlan"—illustrated at right.

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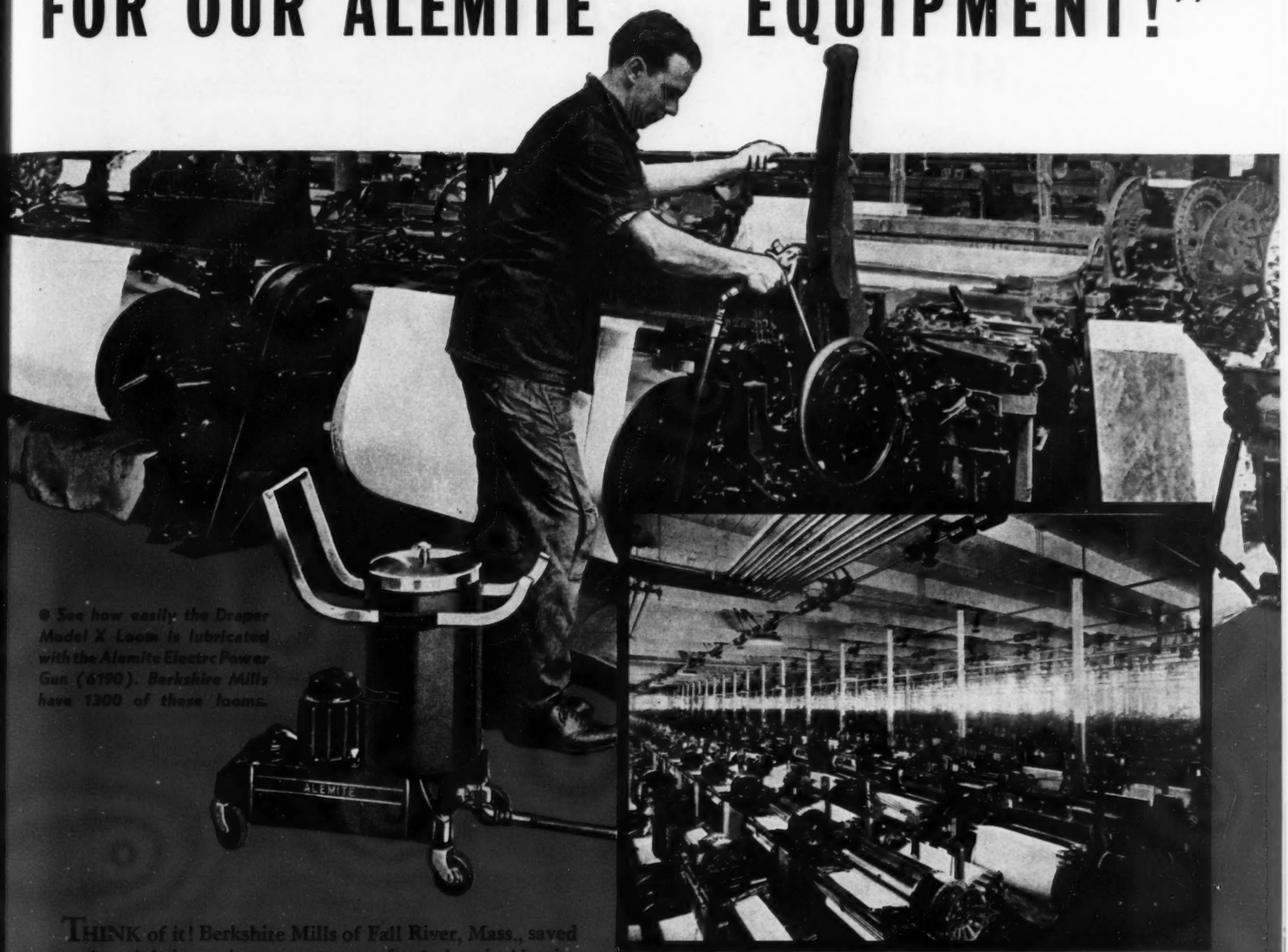

● *See how easily the Draper Model X Loom is lubricated with the Alemite Electric Power Gun (6190). Berkshire Mills have 1300 of these looms.*

THINK of it! Berkshire Mills of Fall River, Mass., saved enough on lubricants *in one year* to pay for 3 electric Alemite Power Guns and all their other Alemite Lubrication Equipment! They did this by adopting Alemite Solidified Oil for lubrication on their looms, and Alemite Concentrated Oil for the comb boxes on their carding machines!

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One pound of Alemite Solidified Oil takes the place of 2½ gallons of the oil previously used on looms—with less labor and *without contamination of product or machine!* They formerly required oiling once a day—now they get Alemite *once a week.*

Let Alemite Engineers show you how to make similar savings in your mill—with Alemite Lubricants and Alemite Lubrication Equipment! There's an Alemite System, power or manually operated, to cut your costs, speed your production, and eliminate expensive contamination. The cost is small. Installation is easy. Production need not be delayed. You'll find a world of money-saving lubrication fact in our two new manuals! Mail the coupon today!

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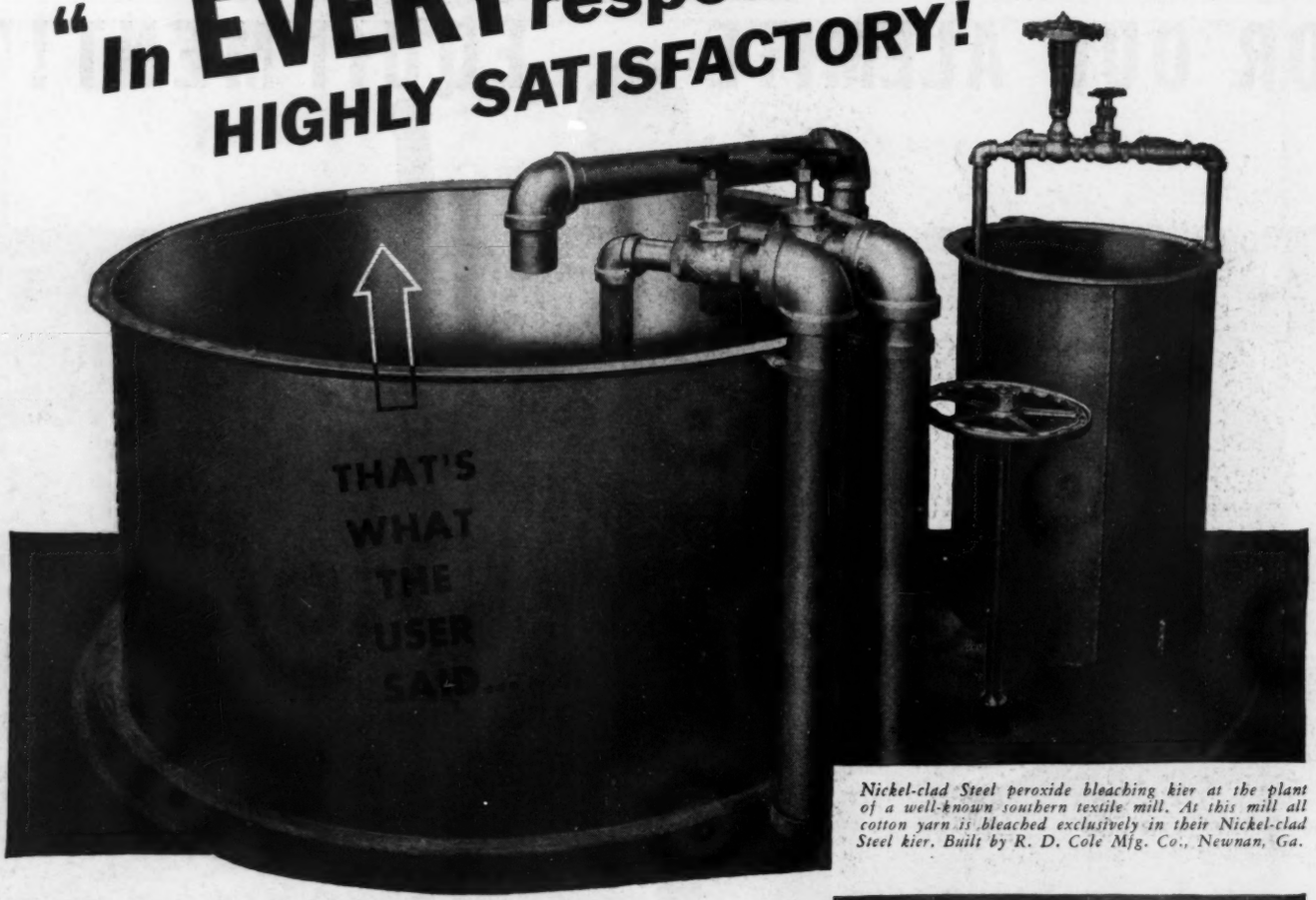

Nickel-clad Steel peroxide bleaching kier at the plant of a well-known southern textile mill. At this mill all cotton yarn is bleached exclusively in their Nickel-clad Steel kier. Built by R. D. Cole Mfg. Co., Newnan, Ga.

. . . HERE'S WHAT THE USER MEANS

CHECK over the list at your right. You'll agree that no metal which doesn't excel in every one of these points, would you call "satisfactory in every respect". Which is the exact phrase used by the manager of the southern textile mill which uses this Nickel-clad Steel kier.

His needs are the same as yours. You want no metal touching your fabrics which is corroded by peroxide bleach or which will harmfully catalyze decomposition of the bleach. You cut costs in operation and maintenance *only* if the rust proof metal you use is also strong and tough to stand hard knocks. And, of course, you can't *use* any metal except one you can readily fabricate.

Pure Nickel would meet all these "musts". But so does Nickel-clad Steel, and for heavy equipment such as large tanks and kiers, at lower cost. This bi-metal is permanently bonded. All that ever touches your bleaches and your fabrics is the Nickel surface, 10% to 20% deep. Yet the steel cladding gives the solid support you need, in the part where you *don't need* corrosion resistance.

Write for full information: a year from now you'll be saying, "satisfactory in every respect."

Requirements for the Peroxide Bleaching Kier

1. The metal forming the kier MUST not cause harmful decomposition of peroxide bleach solutions. It MUST be rust proof and highly corrosion resistant.

2. For the long life that means economy, it MUST have high strength and wear resistance.

3. The metal MUST be readily fabricated by the ordinary methods of forming, welding and riveting.

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PRODUCED BY LUKENS STEEL CO., COATESVILLE, PA.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N.Y.

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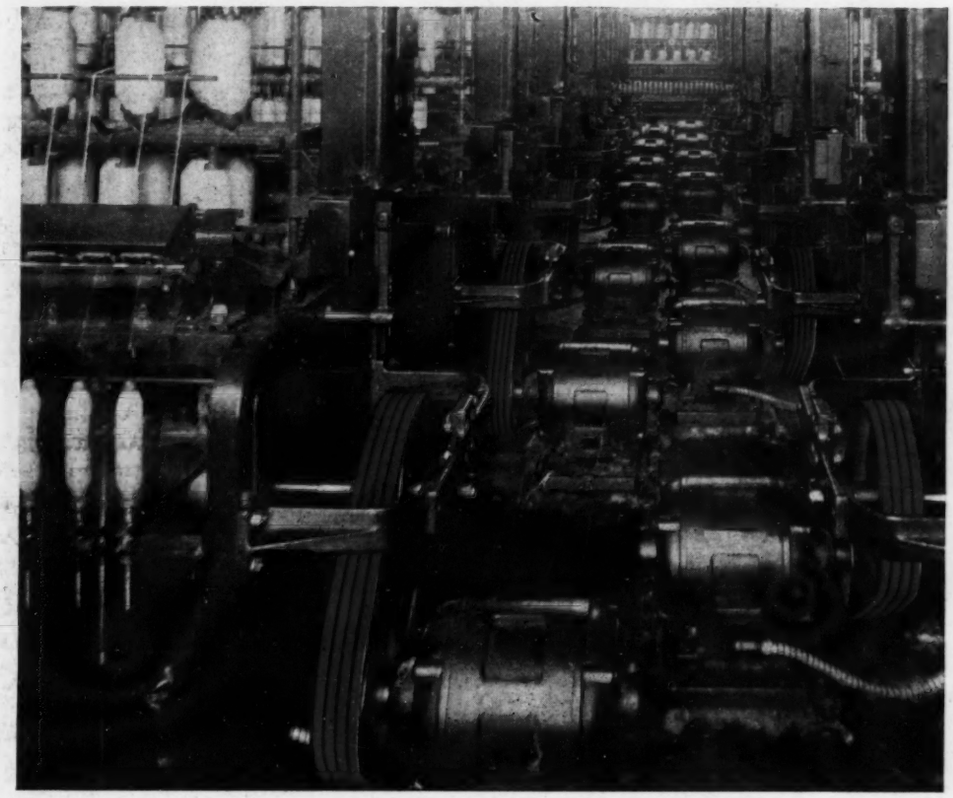

Condor Whipcord V-Belt installation in a limited space.

for

Smooth

UNIFORM POWER

With the starting hum of the motor, Condor Whipcord V-Belts begin to pick up power smoothly . . . transmit it evenly to the driven unit. Day in, day out, their performance does not vary.

Ideal for textile drives—where smooth, uniform power is essential—Condor Whipcord V-Belts embody a strength member that maintains firmness, uniformity, and flexibility even in the most punishing service.

By placing the endless whipcord strength member in the neutral axis area with an extensible section above, a compression section below—an exclusive Manhattan design—Condor Whipcord V-Belts reduce stretch, slip, and internal breakdown. . . . add longer service life and highest operating economy.

For better production, fewer "seconds" and more profit, follow the example of many leading mills—specify Condor Whipcord V-Belts.

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1. Minimum Inelastic Stretch.
2. Wide Margin of Strength.
3. Uniform Flexibility.
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5. Smooth Running.
6. Maximum Traction.
7. High Resistance to Side Wear.
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9. Matched Length.

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Transmission Belt	Suction Hose
Cone Belt	Molded Rubber Goods
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This new section of the McCrary Full Fashioned Hosiery Mill receives better than 35 footcandles of light. Each combination lighting unit contains one 400-watt mercury lamp and three 150-watt MAZDA *lamps.*

"OUR EMPLOYEES LIKE LIGHT CONDITIONING"

says McCRARY HOSIERY MILLS

★**LIGHT CONDITIONING** *provides the right amount of light and the right kind of lighting for seeing and comfort wherever eyes are used in factories, offices, or shops.*

★LIGHT Conditioning with the new type of combination mercury and incandescent lighting gives the McCrary Hosiery Mills, Inc., Asheboro, N. C., makers of Full Fashioned Hosiery, several worth while advantages. Especially increased efficiency and improved employee morale because of the brighter, more cheerful working and seeing conditions.

Light Conditioned textile mills report many advantages including, 1—Decreased production costs; 2—Fewer "seconds"; 3—Improved quality of goods as a whole; 4—Better supervision; 5—Reduced accidents.

Like many leading plants, the McCrary mills use MAZDA lamps and mercury lamps made by General Electric. When blended in equal parts, the color of light produced simulates daylight. For further information on how to light condition your plant, write to either address given below.

MEASURE MILL LIGHTING WITH THE G-E LIGHT METER

With a General Electric Light Meter that measures light as simply as a thermometer measures temperature, you can measure the light in your plant and see whether it is up to light-conditioning standards. Every textile mill executive should have one. Priced at only $11.50.

TEST these key points for profit leaks

Light Conditioning can help greatly to reduce profit leaks in the following departments in a textile mill. Why not test the lighting at these places in your mills by measuring it with a Light Meter?

1—Spinning room
2—Warp preparation and drawing-in departments
3—Weave shed
4—Knitting departments
5—Looping and seaming departments
6—Color matching room
7—Inspection room
8—Office and administration

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Example
Reported by E. S. Redmerski, Reeves engineering staff, New York.

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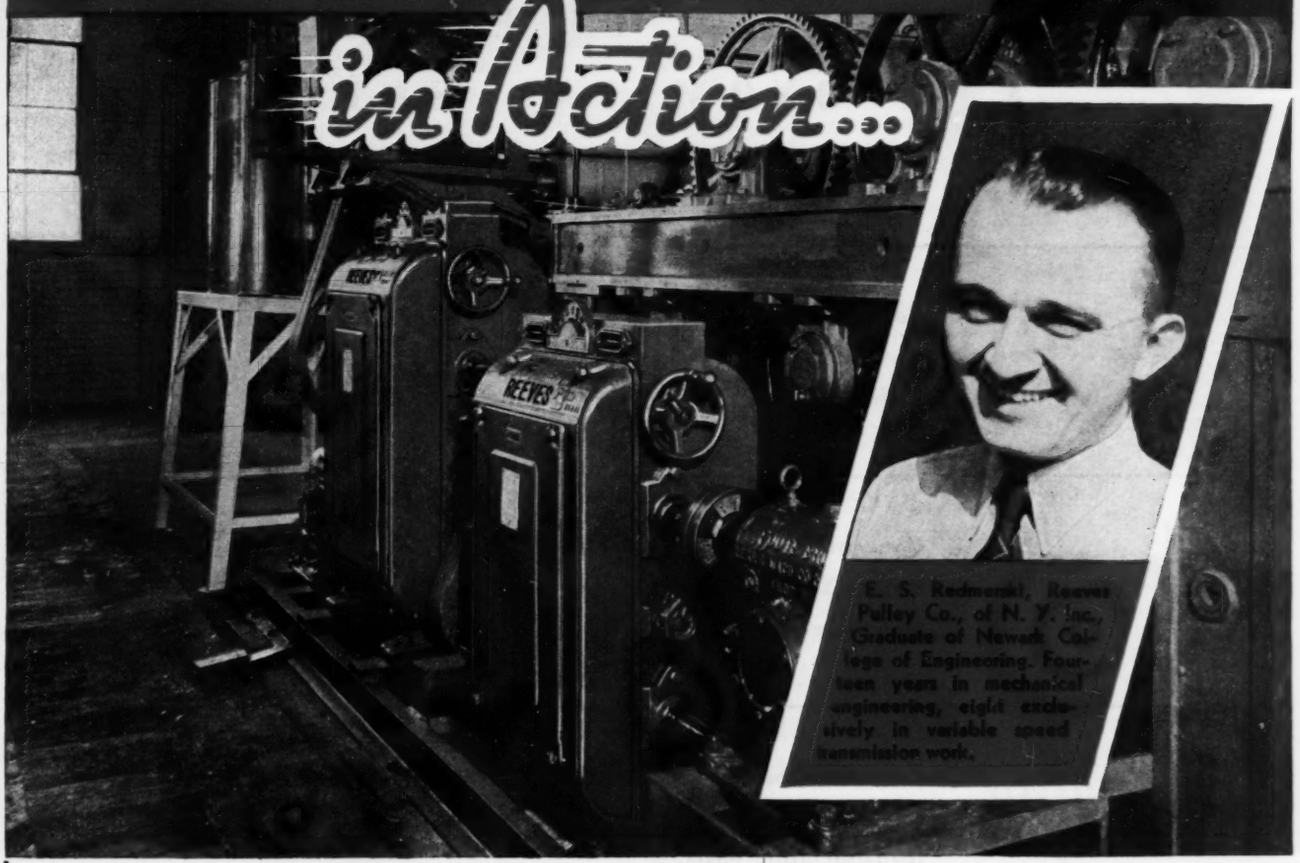

E. S. Redmerski, Reeves Pulley Co., of N. Y. Inc., Graduate of Newark College of Engineering. Fourteen years in mechanical engineering, eight exclusively in variable speed transmission work.

HOW REEVES engineering skill plus the *complete* line of REEVES Speed Control equipment get results for any manufacturer is illustrated by this example reported by E. S. Redmerski, one of the eight sales engineers on our New York staff:

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Men who sell REEVES Transmissions, Vari-Speed Motor Pulleys and Motodrives are primarily *engineers.* All are factory-trained. Many are graduates of leading technical schools. A large majority devote their entire attention to engineering successful applications of variable speed control. And with a complete line of speed control equipment from which to choose—a line built around three distinct, basic units—they are in a position to recommend the ONE best unit for your individual needs. Is it any wonder that their customers rely on their judgment and advice? This unequaled service is available to you—without obligation.

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Send FREE copy of latest edition of your Speed Control Handbook which illustrates and describes the complete REEVES line and its use throughout industry.

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Quality

Concental is stable, develops no disagreeable odor in storage, prevents the formation of scum on the surface of the finishing bath, and does not discolor the fabric.

Uniformity

Concental is produced under exacting control from quality materials. You can depend upon every lot of Concental being uniform, and to produce consistently excellent results.

Economy

Concental, because of its highly concentrated form, has a distinct advantage in price economy. You save on the quantity used and on transportation costs.

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Concental produces the required penetration and softness, plus a firmer hand than is obtained with sulphonated oils.

*Reg. U. S. Pat. Off. by Hercules Powder Company

For further information about Concental and other Drysalters' Textile Chemicals, write

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Incorporated

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Providence, Rhode Island

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COTTON

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IN THIS ISSUE

General and Technical

West Point Mfg. Company Opens New Testing-Research Laboratory, by John C. Fonville ---- 57
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A Study of Some Factors That Affect the Spinning Value of Cotton, by E. H. Helliwell ---- 66
Some New Ideas on the Value Derived from Personnel Administration, by W. M. McLaurine ---- 69
Awarding Pins for Service Records ---- 71
Some Pertinent Points on the Card, by Miles A. Comer ---- 72
Textile Mission Sends Gift to Japanese Conferees ---- 73
Rayon Staple—How to Dye It in Raw Stock, by Heath O. Kennette ---- 74
What Can I Do to Make Them Think? ---- 76
Methods of Fixing Looms (Article 3—Boxing the Shuttle), by B. H. Hawkins ---- 78

How Other Men Manage

Answers "Wash's" Question on Research Department ---- 105
Method of Marking Roving ---- 106
Sidelights on Belt Question ---- 107
Further Discussion on Needle-Point Grinding ---- 109
"Wash" Answers His Own Questions ---- 111
Yarn Slipping on Beam ---- 113
Marquisette Woven without Dobby ---- 114

Current Textile Topics

Talk of the Month ---- 82
Outlook the saving grace of desultory summer trade ---- 82
New England Mill Situation ---- 82
"The Situation"—As Seen Across an Executive's Desk ---- 83
What the Southern Mills are Doing ---- 85
Comment on the Cotton Market ---- 86
New Textile Equipment—Publications ---- 88
News Items with a Textile Slant ---- 96
Personal Notes about Men You Know ---- 98
An Old-Timer Says— ---- 101

Knitting Section

The Maintenance and Fixing of Full-Fashioned Hosiery Machines (Article 3), by Arthur J. Cobert ---- 119
Chemists, Dyers, Mill Men Enjoy Mountain Party ---- 123
Drop Stitches Prevented ---- 125
Tight and Loose Lines ---- 127
Tinted Silk ---- 127
Same Needle Bent ---- 127
Keep the Mill Clean ---- 129
System for Press-Offs ---- 129
Fixing Model "K" Machines ---- 131
Method of Handling Yarn ---- 134
The Knit Goods Markets ---- 137
Review of the Yarn Markets ---- 144

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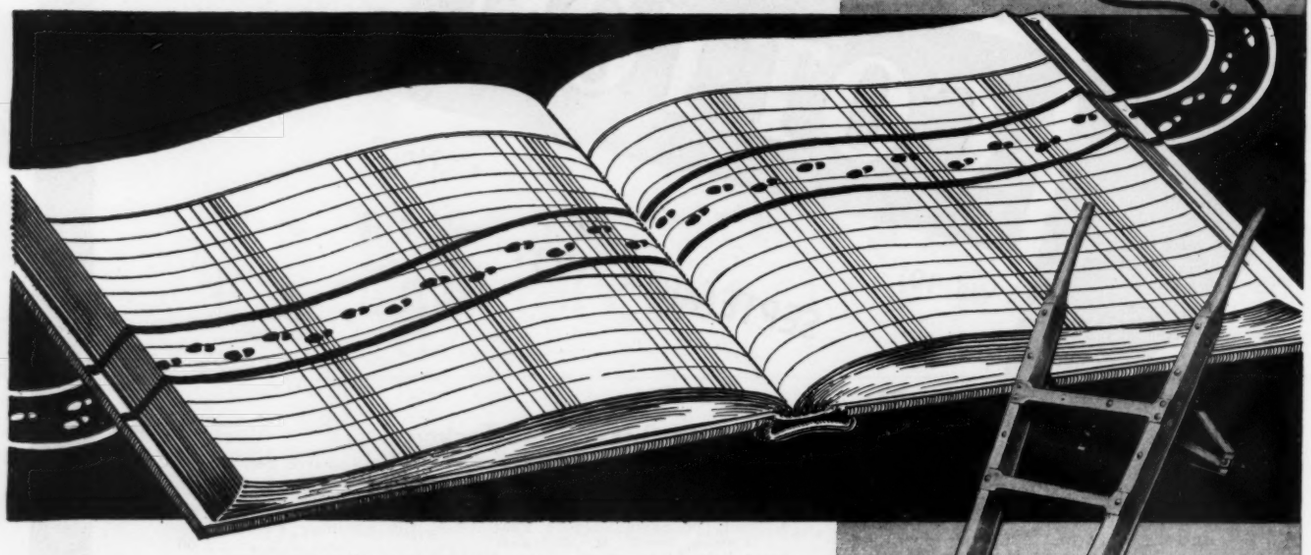
You can track inferior trucks across the pages of your ledger



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There's an "American" Truck especially designed for every type of work. Those illustrated here are especially favored in the cotton industry. Write today for illustrated catalog and list prices.

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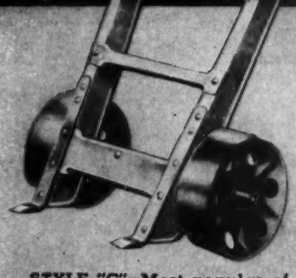
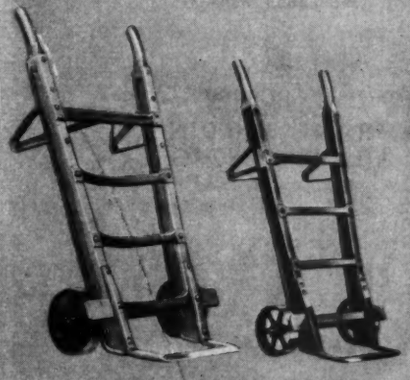


STYLE "C"—Most popular of all Cotton Trucks. Designed especially for the handling and protection of bales. Our catalog lists three sizes in this favorite type.



Two of the 52 different models of nose type trucks in the American Line. Catalog illustrates range of types and sizes for every purpose.

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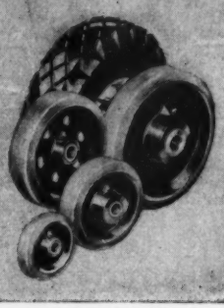
American Tested Rubber-Tired Truck Wheels are available for every type of hand truck. Face and hub dimensions accurately engineered for the load to be carried. Write for catalog illustrating and describing the various types.



AMERICAN
PRESSED STEEL
HAND TRUCKS

Vol. 101
No. 9

COTTON

September,
1937

A Pioneer Moves and Modernizes—

West Point Mfg. Co. Opens New TESTING RESEARCH LABORATORY

By John C. Fonville

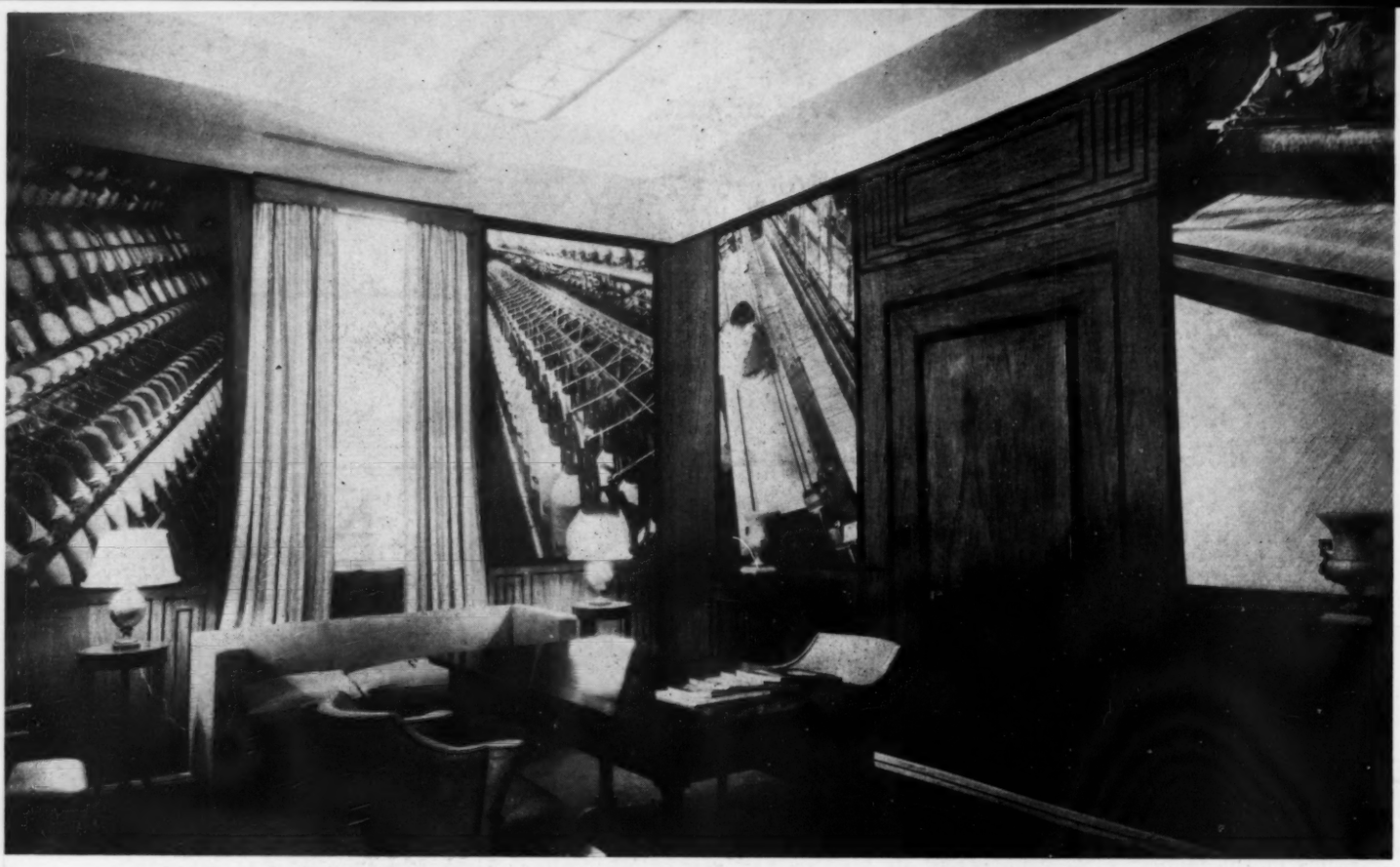
IN 1921 the West Point Manufacturing Company established, at its Shawmut, Alabama, Division, a testing and research laboratory which was at the time one of the pioneer establishments of its kind in the industry. It was started, primarily, to function in relation to tests on hose and belting duck and other "specification goods" then made largely in the organization's duck mills. A much wider field of usefulness for this laboratory was soon evident, however, and its service was gradually expanded to embrace other activities in connection with maintenance and improvement of product quality, bettering manufacturing methods, and correlating the manufacturing standards of the company's mills to the requirements of the customers.

The services of the laboratory were made available to the West Point Company's five plants, at Shawmut, Lanett, Langdale, Fairfax, and Riverview, Ala., and to The Dixie Cotton Mills at LaGrange, and the Anchor Duck Mills, at Rome, Ga., which are closely associated with West Point through the joint selling agency of Wellington, Sears Company, and to other Wellington, Sears mills.

The marketing of industrial fabrics from these several mills by Wellington Sears Company naturally produced a tremendous variety of questions regarding constructions and applications of fabrics in industrial products and processes. This work led to the publication in 1934 by Wellington Sears Company of a publication entitled "Handbook of Industrial Fabrics" edited by Professor Geo. B. Haven of the Massachusetts Institute of Technology.

The distribution of this handbook brought an ever-increasing demand for technical assistance from engineers and purchasing agents. Some of these requests for service require considerable laboratory research

The attractive exterior of the new laboratory at Shawmut. Office of Shawmut Mill Division at right, with the mill in the background



The tastefully furnished and decorated reception room of the new laboratory. The wall panels are photographs of mill processes, made especially for this room by Margaret Bourke-White . . . . .

while many of the problems require comparative testing in connection with experimental fabrics. This work increased to such a volume in the old laboratory that a sub-division of the laboratory activities was required.

In the period since the establishment of the original laboratory in 1921, customer requirements for specifications on various kinds of textiles have multiplied and extended, and now a greater proportion of the entire category of the company's products call for laboratory testing. This increase in the physical requirements made upon the laboratory taxed its facilities. Furthermore, outstanding developments and advances that have been made in testing and research equipment and methods and in atmospheric conditioning, etc., called for improvement, increase in facilities, and modernization in the laboratory. Realizing the necessity of control and research testing for the maintenance of the necessary standards in product and customer service, the West Point management has met the need by the erection, this year, of a new laboratory building, designed and equipped specifically to meet current and future requirements. The laboratory activities have just been transferred into the new building, which, with its facilities, and some illustrations of its services, will be described in this story.

The Functions of the Laboratory

As they have been developed from experience and the needs of their customers, the chief functions of the laboratory may be described in three main divisions: Control testing of manufacturing processes in the mills; specification compliance testing in connection with products and their uses; and the broader field of research testing. The new laboratory building, with its equipment, has been designed specifically as a plant for these activities.

The New Building

The new building itself, located adjacent to the office of the Shawmut Division, is a commodious, single-story building with full basement, 60 by 40 feet. It is built of tapestry brick, with special insulation features. The front portion of the building is given over to the director's office and reception room. The entrance vestibule is equipped with an attractive display case for the exhibition of the company's products. Tasteful and attractive decoration prevails throughout the reception quarters. The reception room is beautifully decorated, and features a series of wall panels containing enlargements of striking photographs of various mill processes, made specially for the purpose by Margaret Bourke-White, the famous photographer of New York City. Inlaid floor covering in this room features in its design the trademark of "Oceanic" duck, one of the company's outstanding products. The director's office, on the opposite side of the building, is tastefully decorated and furnished in the modernistic manner.

The main testing room occupies the entire rear portion of the main floor. It is 60 x 22 feet, with the equipment arranged for efficiency and effectiveness. It has hardwood floors, with a 12-foot ceiling height, and is adequately insulated, with brick and hollow-tile walls, and a Celotex and rock-wool ceiling insulation and a 3-foot air space between the ceiling and roof. It is equipped with the latest design of Parks-Cramer air conditioning, a direct expansion central station unit, which provides a complete air change in the room every two minutes, and uses a 7½-ton West-

inghouse compressor for refrigeration. This equipment supplies air to the room through a duct located near the ceiling on one of the long sides of the room, with return outlets located near the floor on the same side, providing an even and constant circulation, without draft, throughout the entire room. Taylor automatic air-operated controls regulate the system, with which, regardless of outside conditions, the atmospheric conditions in the test room may be held accurately and constantly within a variation of 1 or 2 degrees of temperature and 1 per cent variation in relative humidity.

Entire Building Is Air-Conditioned

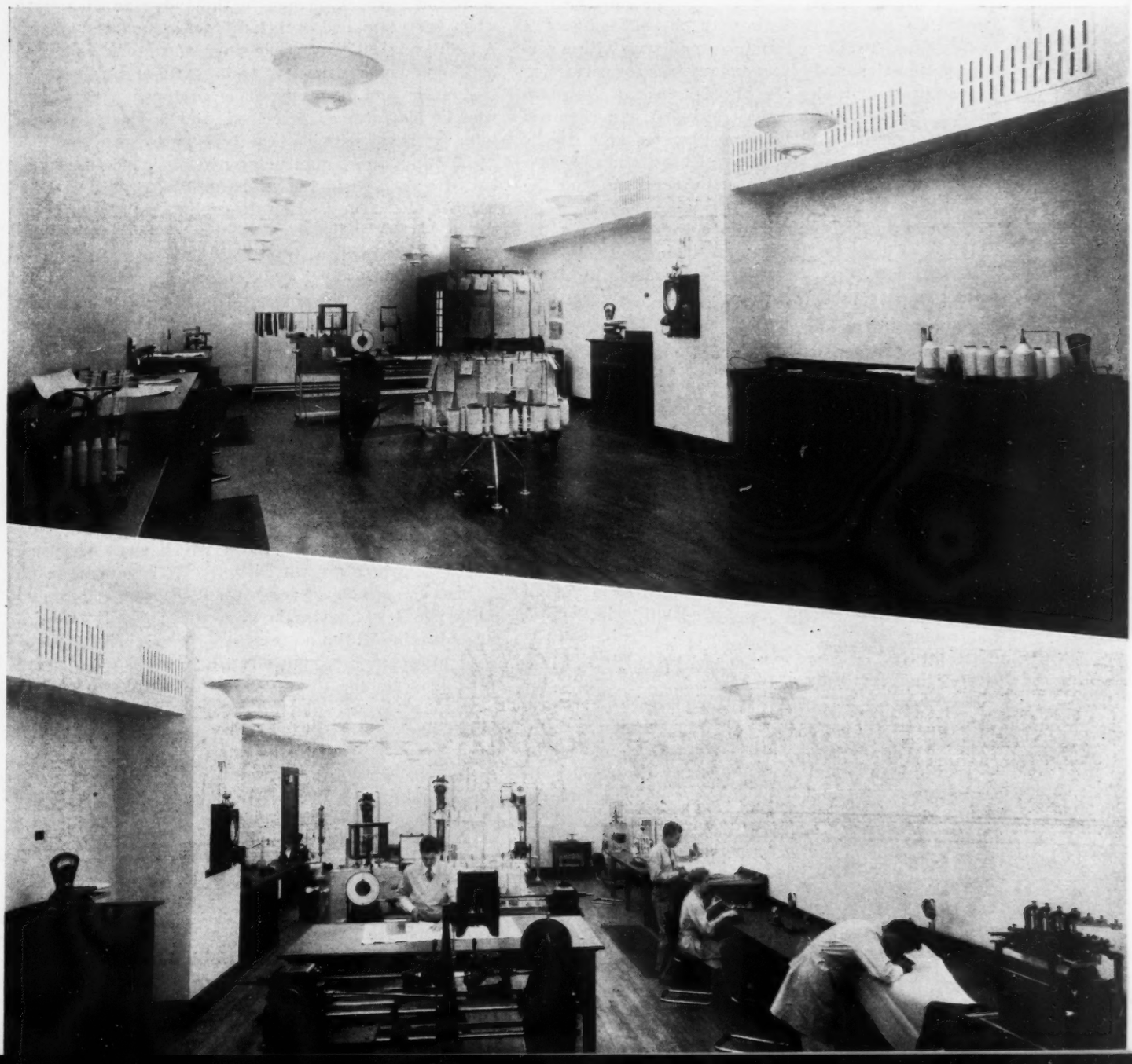
The reception quarters of the laboratory are also air-conditioned with similar, but smaller equipment.

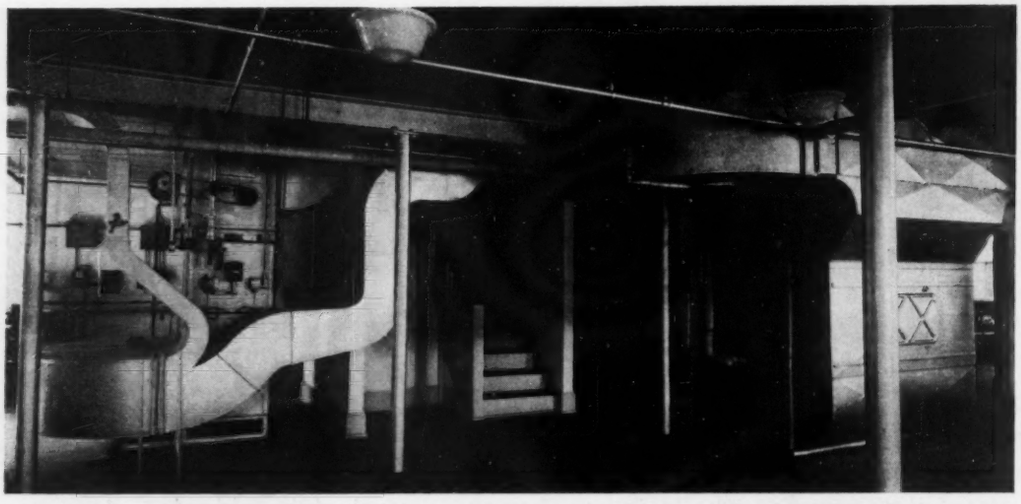
The basement is utilized for the air conditioning equipment, files, photo-micrography and chemical testing.

The lighting system in the main testing room is, like the remainder of the laboratory, modern and especially designed for the purpose. It is of the indirect type, with the light being reflected against a white ceiling. The lights are of the new combination mercury-and-incandescent type; the two systems may be operated independently or simultaneously. When the two are burned at the same time, an effect closely approaching natural daylight is secured—a distinct advantage in providing adequate light at a constant intensity.

As stated, the work of the laboratory is divided into three major functions. Under *Control testing of manufacturing processes*, it covers, among other activities, the analysis of cotton staple, twist determina-

Interior of main testing room. Views made from opposite ends of the room. Note the air conditioning ducts along the wall, and excellent artificial lighting. The revolving conditioning rack is seen in the foreground of the upper photograph . . . . . .





A basement view, showing the "works" of the two air-conditioning systems.

tion, yarn and fabric weights, fabric analysis and determination of tensile strength. Under *Specification compliance testing*, it deals with the elements of a specification, tests to determine compliance with a certain specification, and offers suggestions for correction of specification. Under the broader field of *Research testing*, the program involves physical and chemical and photographic investigations, fiber research, fabric development for new and unusual uses, study of materials and products used in manufacturing, and the development of processes.

A brief tour through the laboratory, with a description of some of its equipment and methods, will illustrate how this essential department in West Point's manufacturing and sales-service program performs.

The Present Laboratory Equipment

The equipment in the new laboratory is of the latest types. Tables and cabinets are arranged convenient to the machines, so that little time is lost in going to them when the tests have been made and calculations are to be made or when storing and filing of the tested products and records is done.

A Suter-Webb stapling machine is used for determining the length of staple and the relative lengths of fiber in a sample. A Brown & Sharpe hand-operated roving reel is used. A device resembling a roving frame creel was designed, equipped with skewers so that roving may be unwound from a bobbin without undue strain. A Belger automatic roving tester is a part of the equipment.

For testing the strength and stretch of single yarn, an Alfred Suter single strand breaker is used. There are two Scott ply yarn testers used, one of 25—50-pound capacity and one of 50-pound capacity. Both are equipped with autographic charts which record the strength and stretch of ply and cable yarns. Each machine has been equipped with small tables or platforms bolted to it so that the operator is not required to reach down to a table to select the samples and then replace them, but may lay them on the platforms until all tests are completed. Adjacent to these machines is a stand made from a twister spindle, which carries the spool of ply yarn, from which the yarn may be pulled without change in the twist, which occurs when yarn is pulled over-end from a stationary spool. A Scott vertical convertible skein and fabric tester, of 300—600-pound capacity, tests yarn and fabric for elongation and strength; it is equipped with a convenient platform as described, and is located near a table equipped with balance type grain scales.

A Suter direct numbering machine reads the number of a yarn when 120 yards are placed on it; it also handles ply yarn, reading direct, in single number or count, by the addition of weights. Next to this machine is a Brown & Sharpe skein yarn winder. A Suter ply yarn twist counter has an attachment so that the twist in the single strand may be determined. A certain amount of tension is placed on the yarn until a metal contact pin, which is drawn up as tension is applied to the yarn, completes an electrical circuit and a light flashes. Then the twist is removed by turning the handle until the same amount of twist is inserted in the opposite direction, which again pulls the contact pin against the metal, causing the light to flash. The total reading on the meter is divided by 2, giving the original twist in the yarn.

Both a Suter 3-inch pick counter with magnifying glass and gear traverse and a 1-inch glass are used. When the 3-inch glass is used, the cloth count is taken 3 times, giving an average over 9 inches of cloth, and when the 1-inch glass is used the count is taken 9 times, giving a similar average. The 3-inch glass is used on fabrics of 25 picks per inch or less. A Randall & Stickney gauge for testing the thickness of fabric has interchangeable feet and measures thickness to 1/1000-inch. Different weights are used on this machine to meet the requirements of different specifications, some of which call for tests with a 6-ounce, 10-ounce weight, etc. For close inspection of fabric for defects, such as reed marks, thin places, etc., there is a table which has strong lamps placed underneath a ground glass surface over which the fabric is passed.

Two Scott horizontal tensile strength machines for fabric testing are used; both are equipped with recording charts. One machine, a standard length machine for testing fabrics in the 600-1,500-pound break

range, operates at a varied jaw separation speed. The other is a 400-pound minimum/800-pound maximum machine.

For weighing yard samples of full width, there is a 68-ounce Toledo scale. A Julian P. Friez & Sons temperature and humidity recorder may be moved to any part of the room. Two 8-basket Emerson conditioning ovens, with scales, are used; and a novel feature of this equipment is that each oven is located on a portable stand so that it may be moved about in the laboratory. This is especially helpful when bone-dry tests in connection with breaking strength are being made; the oven is simply moved to the proper machine and the tests performed without the usual hurry-scurry to get from the oven, usually located on a fixed base in another part of the room, to the tensile strength machine before the moisture content of the sample changes.

Samples to be conditioned and tested are placed on an automatic rotating rack, located in the center of the room, which moves slowly, at 2 revolutions per minute. While the atmospheric conditions of the room are as nearly ideal as possible, the rotation of the rack is an extra precaution to provide the most thorough conditioning possible. The samples remain on this conditioning rack for the time specified in connection with a given test.

This is by no means a complete listing of the equipment used in the laboratory. In fact, it is the policy of the management to continually seek out any additional equipment and methods that will more closely co-ordinate the laboratory's work with the testing requirements of the mills' customers. An instance of this is found in a recent addition to the equipment—a Wyzenbeck & Staff, Inc., precision wear testmeter. This is equipped with a wire slide which oscillates against fabric samples and wears them by friction. In testing heavier goods, a piece of emery cloth is substituted for the wire slide, in order to make the fabric wear faster; since the tests are comparative, this arrangement has been found satisfactory. The pressure of the fabric against the emery cloth may be adjusted by means of a lever and weight. A counter gives the exact number of oscillations of the slide. As the lint and dust are rubbed from the fabric, they are removed by a suction pump into a bag.

The basement testing room is equipped for photographic and micro-photographic work, and also has equipment for chemical testing, oil testing for viscosity and flash point, and de-sizing tests for yarn and cloth. The laboratory has a stationary 8x10 camera, a 5x7 portable camera, and a Bausch & Lomb micro-photographic camera. A stroboscope is also a part of the equipment of this department.

Regular Testing for the Mills

One phase of the laboratory's regular work in connection with *Control testing of manufacturing* is the routine testing of yarn and cloth samples from each of the mills, for strength, elongation, moisture content, etc. A sample of the product, with the necessary identification, is brought to the laboratory in an air-tight can, on which the atmospheric conditions of the room in which it was made are recorded. It is conditioned for at least 4 hours and sometimes for as long as 12 hours in the laboratory.

Then, in the case of a sample of mechanical fabric, for example, the width is measured, the weight determined, the ends and picks counted, and the count of the warp and filling are ascertained. The contraction of the warp and contraction of the filling is determined by using the Brighton Mills crimp tester and the off-square contraction, the difference in contraction between the warp and filling, is recorded. Crimp is found on the same machine. The bow and gauge are found. The twist in the warp and filling is checked on the twist counter and, if required, the sample is further conditioned, weighed, broken and bone-dried to determine the actual regain and moisture content. In testing for tensile strength, lines are drawn on the sample to follow the warp and filling threads so that there will be no cross-pull when it is placed in the machine. Some samples are tested for tensile strength after conditioning in the room, others after bone-drying, and some in both ways.

When samples do not meet the pre-determined standards of the mill, the proper department is notified immediately.

In the chemical and photographic room in the basement. The door at the right leads to the "dark room" for developing films . . . . . .

In addition to this regular testing of finished products, regular tests are made of stock in process, including roving and raw stock. For instance, a bobbin of roving, brought to the laboratory, is run through the Belger roving tester, and any discrepancy or defect is immediately reported back to the card room. Or, a sample of raw stock is tested for staple and percentage of short fiber.

The second main function of the laboratory, *Specification compliance testing*, represents an important advance and a progressive step which is especially significant in connection with this company's products, most of which are purchased under rigid specifications. Mill testing is done according to the standard American Society for Testing Materials specifications. Specification compliance testing is carried out according to specific requirements, or under ASTM standards, as desired.

The third phase, *Research testing*, is broader in its scope than the other two, but is closely related to the routine work carried out under process control and specification compliance testing. As indicated in an earlier paragraph, this phase embraces a study of materials and products used in manufacturing. An example is the testing done of lubricating oils to check on flash point, viscosity, etc. Plans are now under way for augmenting the chemical research phase of the laboratory's activities, and work along this line may be gradually expanded.

Furthermore, while the pure research phase has probably not been emphasized in the past as much as the other two functions, the laboratory is keenly aware of the strides being made in the relation of pure research to manufacturing, and is prepared to expand this part of its work.

Two cases may be cited as illustrations of the practical value of the laboratory's services in connection with actual mill operation. In checking up in order to place the responsibility for a defective piece of product upon the right department, the work of the laboratory is invaluable in checking samples of the stock as it comes from each of the processes in the progressive steps toward the completed yarn and cloth. In this manner a defect is located close to its source and can therefore be remedied more readily and with less consequent damage to the product and quality.

The analysis of cotton fiber through the use of the staple sorter proves useful in many ways. One of the mills had difficulty with the cards loading up. The staple apparatus was used on the stock, and it was promptly and conclusively determined that it was long cotton that was causing this, rather than short staple falling down and packing up the card as was first supposed.

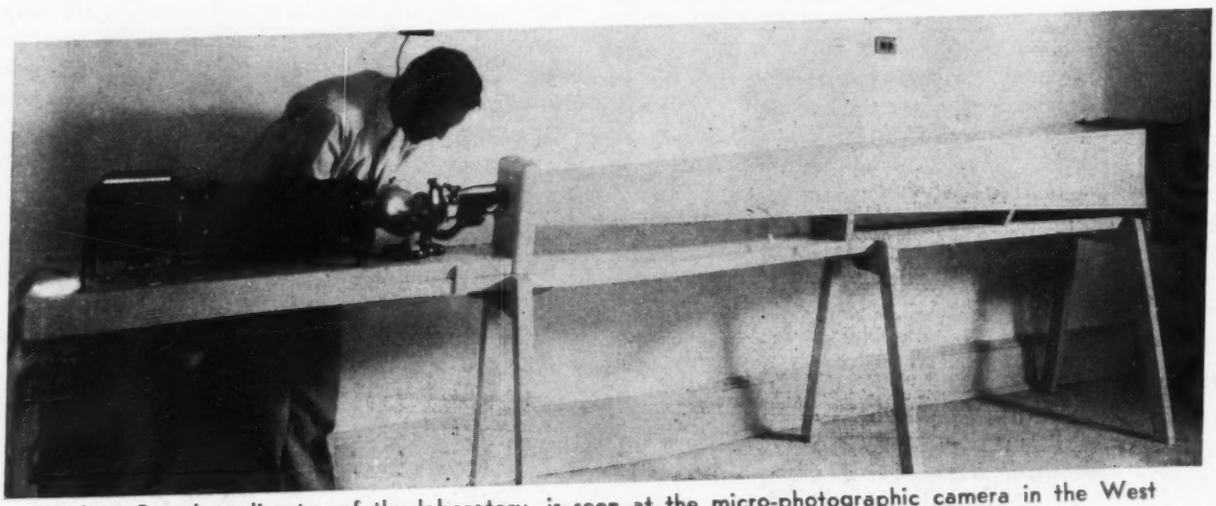
One time one of the mill managements had a suspicion that the depredations of the boll weevil were resulting in a decreased breaking strength of yarns made from cotton coming from the weevil-infested areas. To experiment, a bale of cotton was taken from an infested territory, and another bale secured from a territory not yet invaded by the weevil, and tests run through under identical conditions. Making a 7s yarn it was found that the cotton from the weevil-infested area showed a breaking factor of 1,614 while the cotton from the non-infested section produced a yarn with a breaking factor of 1,948.

The complete and comprehensive laboratory files provide a cumulative fund of information and experience. A half-yard sample of every style made is stored and indexed. Another sample, 8x10 inches, is filed with cloth organizations and test results, giving two permanent records of each style.

After the regular tests for manufacturing are made, the report forms are passed to a clerk, who records the data on a 8x5-inch card in a Kardex system; 50 such records may be tabulated on a single card, giving a convenient record of each style over a period of years. These cards give the complete information as to specifications, compliance, strength, crimp, count, gauge, bow, etc.; it is a fabric's diary, and, subsequently, history.

The laboratory is in charge of Robert Rearden, who has supervised its activities for a number of years. The staff consists of 3 men and 2 women assistants.

R. Kennon Perry, of Atlanta, Ga., was the architect in charge of the design and erection of the new laboratory building. Batson-Cook Company, of West Point, Ga., were the general contractors.



Robert Rearden, director of the laboratory, is seen at the micro-photographic camera in the West Point laboratory

Modern Practices, for Textile Plants, in POWER FACTOR CORRECTION

By A. G. Stanford *

A RECOGNIZED authority on textile mill electrical problems tells here how in some southeastern states, mills may realize handsome returns by raising their power factor. One mill which installed capacitors for power factor correction effected a yearly saving of $25,000 a year on its power bill.

That's real money—and this article may start you on the way to a similar benefit . .

NEW MEANING has been placed on the power factor clause in many wholesale power contracts with the introduction, by several power utilities serving industries in the Southeast, of new or modified rate schedules which offer positive reductions in the cost of power through the medium of higher maintained values of power factor.

With the complex problems of interconnected high tension transmission systems and the ever-increasing demand for wholesale, commercial and residential power, the utilities have reached the stage in their expansion programs where the overall power factor of their systems is a matter of vital importance if voltage and regulation is to be maintained in a manner satisfactory for all classes of customers.

Years ago, while wholesale power contracts were in an experimental stage and definite rate schedules were being formulated, many types of motors and other electrical equipment were being rapidly developed commercially and offered to the industries as a means of improved motive power. The resultant effect of the various designs of electrical equipment on the power factor at generating station was not fully known nor of primary interest to the utilities during their early days of development.

With the very definite knowledge that it cost more to generate power to supply a load of low power factor as compared with one of higher value, it was but natural that the utilities should incorporate in their contracts certain limitations, insofar as the power factor of the customer's load was concerned. This was to obtain a degree of protection to the supplier and to make more equitable the adopted rate schedules, to the end that the customers whose average power factor was reasonably high would not be penalized in bearing a portion of the added expense of producing power to supply those customers with extremely low power factors.

A majority of wholesale power contracts have carried the provision wherein the customer agreed, in some cases, to maintain not less than a stipulated value of power factor or, in other cases, to pay at a higher rate for the energy consumed at power factors lower than that stated in the contract. The power factor value usually stated was 80 or 85 per cent, these values having no doubt been arrived at as a fairly close average of the resultant power factors to be expected from the type of drives then in most general use.

Only in rare cases have the utilities enforced the power factor provisions of their contracts even though, in the light of the present day practice which approaches individual motor drives for all machines, the various requirements of these small motors, transformers and controls has resulted in the average operating power factor of many of the wholesale customers being in the range of 65 to 75 per cent.

For their part many utilities in the Southeast are making large investments in power factor corrective equipment in the form of large synchronous condensers and capacitors and locating them at important

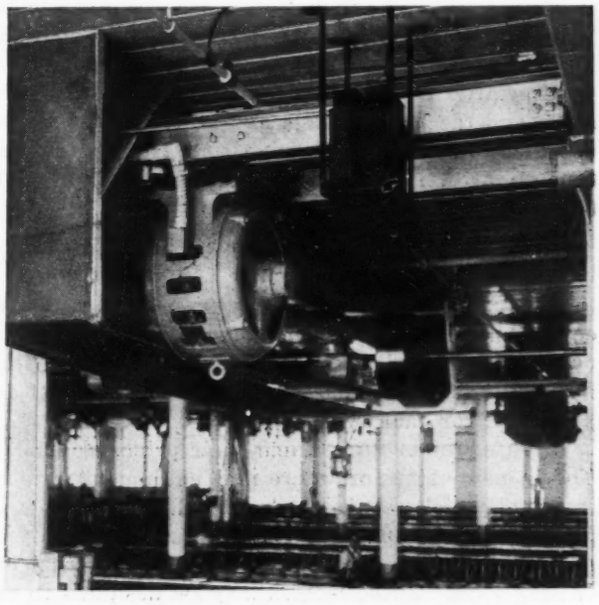


Fig. 1. Two 10-kva box type dust-tight capacitors on 40-hp. motor driving cards and drawing with connections made in motor starter . . . . . .

*Manager, electrical engineering department, Robert and Company, Inc., Atlanta, Ga.

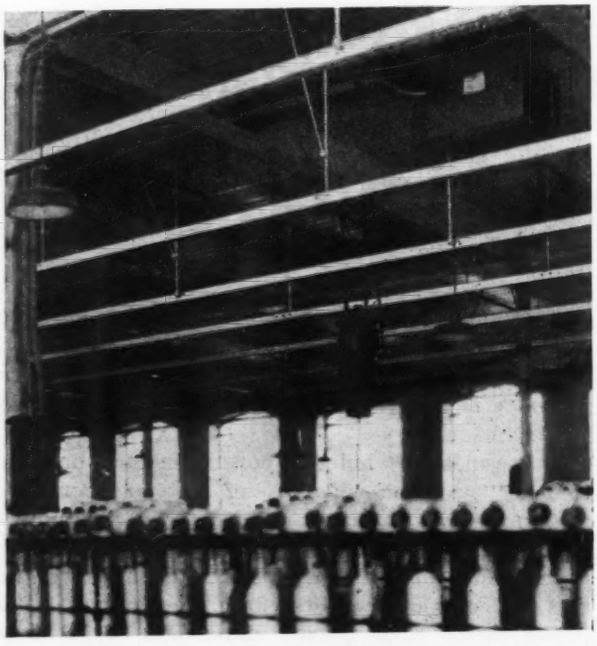


Fig. 2. A 60-kva small rack dust-tight capacitor for mounting at center of load distribution on feeder circuit. This is shown mounted on channel iron supports in a spinning room . . . . . .

points on their transmission and distribution systems.

To make mutual the benefits from higher maintained power factors some utilities have already offered, and others will offer in the future, rate schedules embodying definite reductions in the average per kilowatt hour cost. Other utilities may find it necessary to enforce the penalty clauses pertaining to power factors below the stipulated value.

From the standpoint of any wholesale customer, it is worth while to have a comprehensive study or survey made of the existing power factor conditions to determine both the amount of corrective capacity and the type of equipment that should be installed to effect the greatest return on the investment and the greatest operating benefits for the entire plant.

Only after a survey of existing conditions has been made and the load, voltage and power factor values obtained for all feeders is it possible to determine the type of corrective equipment best suited for the particular needs.

Types of Equipment Available for Power Factor Correction

The principal types of power factor corrective equipment are the synchronous motor, the synchronous condenser and the static condenser or capacitor. Following is a brief outline of the more general applications for each type.

SYNCHRONOUS MOTORS find their principal application in new plants or where new equipment is to be installed which require motors of large horsepower rating and only where the total installed capacity of such motors is a large percentage of the total operating load. These motors may be designed to operate at a definite mechanical load at 100 per cent or unity power factor with additional capacity to supply reactive power at any percentage of leading power factor which latter in turn offsets the lagging power factor or squirrel cage type motors and other inductive equipment in operation in the plant.

It should be noted that synchronous motors should be used only on drives which operate almost continuously if the desired overall value of the power factor for the plant load is to be maintained.

Due primarily to the absence of many large motors in textile plants the synchronous motor finds its least application in this industry.

SYNCHRONOUS CONDENSERS, while providing a more positive means than synchronous motors for maintaining the desired percentage of corrective capacity, have the disadvantage, for many plants, of being another piece of rotating machinery which should be housed in a manner which permits of constant supervision by a competent attendant. Remote and automatic control devices for these machines remove only a portion of their disadvantages. Primarily for this reason this type of corrective equipment has not been used extensively in textile plants.

Up to a few years ago synchronous condensers could usually be installed—where fairly large amounts of corrective capacity was required—at a considerably lower cost than capacitors. Even after taking into consideration the higher operating losses, maintenance, etc., these machines would show a greater return on the investment. At the present day price of capacitors this condition no longer holds true for synchronous condensers except perhaps for certain industries where unusually large blocks of power are involved, and the installation of large rotating units offers no serious handicap.

Equipment Best Suited to Textile Plants

With the improvements in the manufacture—and consequent reduction in cost—of capacitors, this type of equipment for power factor correction is rapidly gaining in popularity. The flexibility of installation makes these units ideal for practically any type of plant and with the proper distribution and capacity of units a maximum of benefits can be obtained.

In general, three arrangements of the units are available, each of which involves the use of the required number of standard 5, 10 or 15 kva single- or three-phase units to obtain the necessary amount of corrective capacity. These are as follows:

First, the *individual motor capacitor* which may consist of one or more standard units which may be mounted directly on the motor frame or adjacent thereto and connected either directly across the motor terminals or across the terminals on the load side of the motor starter but ahead of the overload protective device. If it is desired to leave capacitor in operation when the motor is stopped, the capacitor may be connected across the load side of the disconnecting switch ahead of the motor control.

While requiring, in some cases, more wiring than the succeeding types, the necessity for a separate circuit breaker or switch for the capacitor is eliminated with the result that this method may frequently be found to be the cheapest in first cost. Figure 1 illustrates an installation of this type. It should be noted that the dust-tight unit is approved for installa-

tion at any point where motors and controls may be installed in textile plants.

Second, *the rack type, dust-tight units* assembled in small groups usually totalling from 30 kva to 120 kva mounted in racks on the wall or suspended from the ceiling or beams. These units should be located near the ends of feeders or as far from the substation as is practical so that the greatest benefit in voltage regulation and reduction in line losses can be obtained. In existing mills a tap or pull-box can usually be found from which the supply circuit to the capacitors may be run.

An air circuit breaker or fused disconnecting switch should be installed on a column or wall convenient to the unit. With this arrangement someone in each department can be made responsible for disconnecting the capacitors when the motors are shut down since it is undesirable to leave the corrective equipment in operation when not required.

It is optional whether the capacitors are connected on the line before or after the motors are started since the chance of damage to motors and controls due to high line voltage is slight. A safe rule to follow would be to start some of the motors, then the capacitors and then the balance of the motors.

Figure 2 shows a 60 kva, three-phase, dust-tight, rack-type unit with air circuit breaker control mounted on column.

Third, *the large rack type unit* each with control circuit breaker mounted on capacitor frame and arranged for indoor or outdoor mounting. These units are usually installed at the substation or adjacent to the main switchboard and connected across the low tension busses.

While having the advantage of being compact and requiring only a small amount of installation expense, the full benefit from corrective equipment cannot usually be obtained with these units, and in some cases the total investment cost will be higher than for the small dust-tight units.

Figures 3 and 4 show different arrangements of indoor rack type units.

As a special application of this type—and one which has certain advantages—by the use of an automatic control panel, a motor-operated breaker with suitable relays is used and the capacitor is connected so as to be switched on when the plant load reaches a predetermined value and to be switched off when the load falls below a certain point, thus avoiding low line voltage during times of heavy load and high line voltage during times of light load.

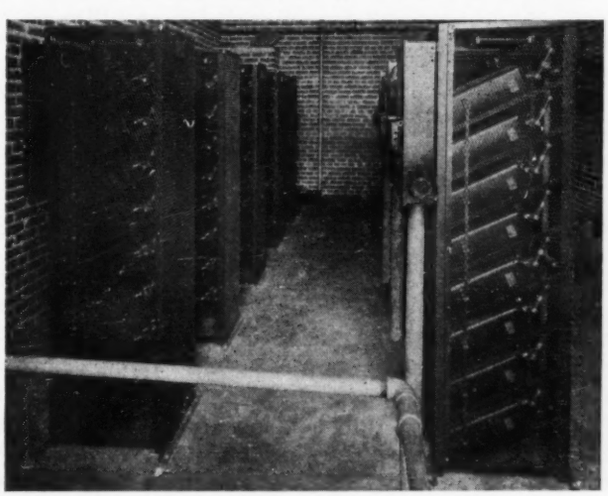


Fig. 3. Eight 120-kva, three-phase rack type units installed in room over switchboard room . . . .

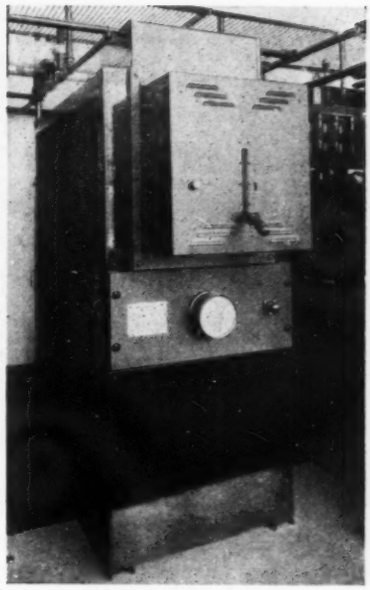


Fig. 4. A 540-kva, three-phase rack type unit connected across an extension of main switchboard bus. Two other units of 240 kva capacity each are installed on the left of the unit shown here . .

Savings in Power Cost;—in One Mill, $25,000 per Year

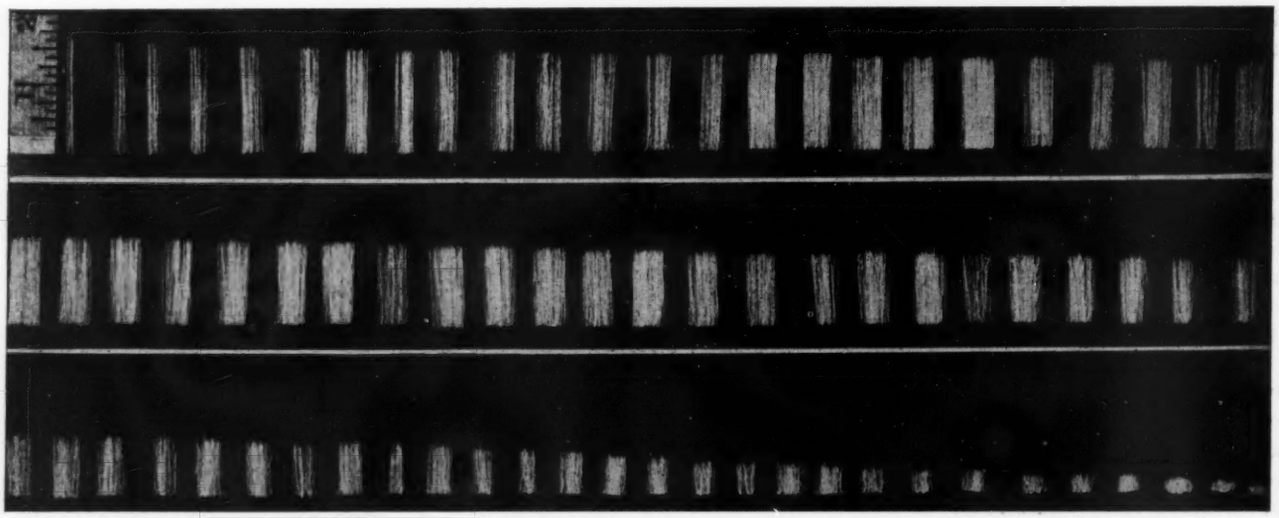
No arbitrary figures can be given on the actual saving to be realized through power factor correction since this varies in each plant and is dependent on present operating values, the corrective capacity to be installed, and the rate schedule to be applied.

As an illustration of the possible savings in power cost an installation now being made in a cotton mill in the Southeast where approximately 2,200 kva of capacitors are being installed of the small rack type dust-tight units at an installed cost of approximately $10.50 per kva, the total annual saving in purchased power will be very close to $25,000.

Undoubtedly there are many other plants wherein the possible savings, based on rates that are now in effect, will show an annual return of from 20 to 80 per cent or more on the necessary investment in power factor corrective equipment.

It should be borne in mind that as far as the effect of corrective equipment on the monthly bill for power is concerned a kva of corrective capacity, of any type of equipment, will bring about practically as much saving, no matter at what point in the plant it is installed. But with the proper study made and care used in the selection and location of the equipment, many supplemental benefits can be obtained such as: relieving overloaded circuits, excessive voltage drop on long feeders, etc. The installation of power factor corrective equipment can often be justified to secure only these supplemental benefits even when no direct savings are offered by the utility.

For textile plants, the choice of equipment, based on present day cost, lies largely between the individual motor box type units or the small rack type, dust-tight units, each of which may be applied in a large number of ways.



Fiber arrangement showing various lengths of staple in one "pull" of cotton.

A Study of—

Some Factors That Affect the Spinning Value of Cotton

By E. H. Helliwell

GIVEN here is the article that you have been looking for a long time. The author has written in condensed form the factors affecting the spinning value of cotton, and in such a manner that it is obvious to us all. He modestly states that credit is due him only for collecting, compiling, and condensing the information herein contained, that the real credit goes to the cotton classers, mill men, research workers, and technical instructors, whose willingness and patience made the article possible. This article is passed on to the reader, not as a complete statement of facts, but as a basis for further research and experiment which is so needed in the textile industry today. A journey of a thousand miles is begun with one step.—The Editors.

THE FACTORS affecting the spinning value of cotton usually are stated in the following order of importance: grade, length of staple, strength of staple, character, and uniformity of staple. Considered from the standpoint of yarn strength and end breakage, the most important factors are length of staple and uniformity of staple.

Grade, as an indication of color and amount of trash contained may affect the waste loss during processing, and may affect the appearance of the finished yarn without affecting the yarn strength or end breakage, but grade as an indication of preparation and presence of neps and gin-damaged staple is more important because of its possible effect on the yarn strength.

The strength of staple may vary within fairly wide limits without affecting the yarn strength.

Character has a rather broad meaning and may be divided for discussion into the following properties: fineness or diameter of fiber, spirality or convolutions per unit length, temper of fiber, and degree of maturity. All of these properties are noted by the cotton classer as cling, drag, or body, and are sensed as a composite result rather than distinguished as separate qualities.

Creamy-colored cotton is always considered as most desirable as the color enhances the appearance of the finished yarn. The property that the color indicates, rather than the color itself, makes the good-colored cotton desirable. Creamy cotton is usually the first picking, is fully ripe and is free from immature fiber, whereas the blue or bluish-gray cotton indicates some kind of deterioration, and the yellow-tinged, stained or spotted stock, though of lower grade, often shows a good staple of uniform length.

Length of Staple

The length of staple selected to be run should suit the numbers to be spun, there being certain recognized ranges of counts for specified staple lengths. Cotton of 1-inch staple is suitable for counts from 30s warp to 40s filling and should give a yarn of high skein break and low end breakage. Good spinning results could not be expected from a 1-inch staple when 50s to 60s are spun. This point should be given ample consideration when determining the

spinning value of particular staple lengths. Given here is a range of counts and the staple lengths which are considered good practice:

Staple	Carded Yarn		Combed Yarn	
	Warp	Filling	Warp	Filling
½" to ⅝"				
⅝" to ¾"	Up to 10s	Up to 10s		
¾" to ⅞"	10s to 14s	10s to 20s		
⅞" to 1"	14s to 20s	20s to 30s		
1" to 1⅛"	20s to 30s	30s to 36s	to 30s	to 40s
1⅛" to 1¼"	30s to 36s	36s to 45s	30s to 60s	40s to 70s
1¼" to 1⅜"	36s to 50s	45s to 60s	60s to 70s	70s to 100s
1⅜" to 1½"	50s to 70s	60s to 80s	70s to 80s	100s to 120s
1½" to 1⅝"			80s to 100s	120s to 150s
1⅝" to 1¾"			100s to 180s	150s to 180s

It may often prove good economy to vary the staple length by 1/32-inch or 1/16-inch above or below these specified lengths for many reasons. For certain staples the premiums or discounts on the stock may influence the length, or less waste loss, higher permissible speeds, and better yarn and fabric may cause the mill to vary from the standards of staple selection. The staple length in any given lot should be kept as uniform as possible. Often when a 1-inch staple is selected, a number of 15/16-inch staple bales may be included and offset by a like number of 1 1/16-inch staple bales, however, this is not good practice because even though the staple may average 1-inch in length, the results often will not be equal to those that might be obtained from the uniform 1-inch mix. When the stock is of mixed staple, it is difficult to obtain suitable roll settings for such variation in staple length, and in many cases, uneven drafting in the roving and spinning processes are evident, and often cockled yarn is produced from the staple that is too long.

The requisites of a good warp yarn are strength and uniformity, the yarn with the fair breaking strength and small variation being preferred to that having the average high break but with a wide variation in breaking strength. A yarn may be judged more fairly on a basis of its *deviation* and *variation* from its average strength and size rather than from its *average* strength and size alone. The spinning ends down tests are not comparable on a basis of average yarn strength because of this variation from high to low. Government tests on 28s warp yarn have proven that the factor of staple length accounts for approximately 90 per cent of the strength of the yarn, and that within a narrow range, the strength of the yarn is proportional to the length of the staple, other things being equal.

Uniformity of Staple. Proportion of Short Fiber

There is no doubt but that the most important factor in the spinning value of cotton is the uniformity of staple, that is, the proportion of the stock that is shorter than the stated length. The cotton classer considers only the body bulk when he measures the staple and the average length and proportion of short fiber is seldom noted. The two extremes in uniformity of staple are shown in the following laboratory tests:

Sample	1-inch or longer	⅞-inch to 1-inch	¾-inch or shorter
No. 1	50 per cent	35 per cent	15 per cent
No. 2	14 per cent	63 per cent	23 per cent

Cotton from the No. 2 sample bale could hardly be expected to produce yarn of the same strength as cotton from the No. 1 bale, but both are 1-inch staple of approximately the same character, except from the standpoint of uniformity of staple. Laboratory methods are necessary to make determinations as shown previously for the actual percentage of different lengths; the cotton classer or mill man will not have the time or skill to make these precision measurements.

Varied Staple Length—Varied Yarn Strength

Variation in staple length has been shown to account for 90 per cent of the variation in yarn strength, an increase in the proportion of short fibers not only directly lowering the yarn strength, but also increasing the waste in processing and causing uneven drafting and uneven yarn size.

Less drag is often noticeable on the break and pull of a sample containing an abnormal proportion of short fibers and this may be proven by making 5 or 6 equal successive pulls from the tuft and noting the length of fiber which is removed at each pull and which remains after the last pull. If a large proportion of short fibers is present, the length of fiber at each pull drops rapidly from full nominal length to one-half or less of full length.

Although this is only a rough method, it will often show large variations in cotton of apparently the same staple length and these indications may be verified by subsequent variations in yarn strength. A certain skill and instinctive keenness seem to come with practice but the correctness of the observations should be checked occasionally by making fiber array diagrams either by hand or by a stapling machine.

Much grief in roving and spinning processes can be anticipated and partly prevented by prompt detection, rejection or proper mixing of bales which show abnormal variation in staple lengths or excessive amount of short fiber.

Fineness of Staple

There is a noticeable difference in the diameter of fiber between Sea Island, Egyptian, Pima, and American types of cotton. Also it is a proven fact that the strength of a yarn is affected by the number of fibers in its cross-section, a fine staple Sea Island or Pima cotton, other factors being equal, making a stronger yarn than the coarser-staple American types. Considering only American varieties, it is safe to say that difference in fiber diameters of normal cotton of the same type has little influence on the yarn strength; the mean diameter is approximately .0008-inch with about 20 per cent as the normal variation.

Spirality

Convolutions per inch in American types of cotton vary, according to different researchists, from 150 to 190 with a mean of about 170. This is, of course, a laboratory test, but abnormally low numbers of convolutions may be detected often when stapling by a certain smoothness or slickness to the cotton

when it is being pulled for staple. This frequently indicates partly matured fibers.

Polarizing Microscope

The use of the microscope and the polarized light for determination of different degrees of maturity of cotton fibers has shown conclusively that the strength of yarn is greatly affected by the maturity of the individual fibers. From observations made, it seems probable that the main result of immaturity is a lessened number of convolutions per unit length, with secondary effects of decreased length, temper, strength, and a greater tendency for the fiber tips to break off during the processing.

The property of cotton fiber designated as temper is rather elusive and hard to define. Where individual fibers have been examined in the laboratory and their length, diameter and convolutions have been found to be almost identical, yet certain types have shown a greater elasticity or spring than other types, this spring or elasticity is known as temper. This temper is a desirable trait, and with care in manufacturing it may be transmitted to the finished yarn. Experienced classers can detect this property and note the increased drag or body of these types. Further research along these lines probably will prove that this property is due to increased thickness of fiber walls.

Strength of Staple

F. H. Bowman has shown that only about 20 per cent of the fiber strength is utilized in a cotton warp yarn where the standard twist multiple is run, indicating that the fiber slippage and not fiber breakage is the main factor affecting yarn strength. Tests for fiber strength should be made from each bale to detect the damaged staple from mildew and other causes. A musty odor often may be noticed in bales that have been exposed to moisture or stored in damp places and this odor indicates the presence of mold or mildew. The odor of kerosene in cotton should be regarded with suspicion because gin operators, at times, use kerosene when ginning wet cotton, or when offsetting the faulty condition of the saws, or when attempting to push gin production beyond a reasonable point. Special precaution should be taken to detect gin-damaged staple in this cotton.

When testing for strength, a small thin tuft of parallel fibers about one-half inch wide should be taken, and a steady pull to fracture given which will show more obviously the strength than a quick snap. The advantages in taking a small tuft are that the breaking point is reached sooner, the force of pull is easier to gauge, the fibers may be doubled for a second pull on weak fibers, there is less danger of the fibers slipping through the fingers, and the elasticity of the fibers may be noted before they break.

Moisture in Cotton

Under normal conditions the moisture in cotton varies between 5 and 12 per cent. Besides causing a pecuniary loss from the invoiced weight, excessive moisture makes the cotton harder to clean in the opening and picking processes, and is likely to cause mildew. Dry cotton soon adjusts itself to moisture regain in picking and carding processes, however, humidity and temperature control are essential throughout the entire manufacturing processes. Before the yarn is tested for breaking strength the skeins should be conditioned to normal regain.

Determination of staple length should be made under normal regain conditions. The government standards for staple length call for a relative humidity of 65 per cent at a temperature of 70 degrees F. This is a regain of about 8.2 per cent. Conditions which are drier than this will result in classing a staple shorter than actual.

Stapling Machine May Stretch Fibers

The use of stapling machines often shows a staple considerably longer than is the actual case in the natural cotton, due partly to the combing and stretching action of the combs and forceps used in the separation of the fibers. This indicated length closely approaches that of combed sliver when the same cotton is tested. Allowance should be made for this stretch and straightening when comparing lengths from baled cotton. The sliver from the drawing process will appear to be from 6 to 10 per cent longer than the cotton from which it is made, the natural crimp having been removed partly from the fibers, thus slightly lengthening them. This crimp removal can be carried to the point, by drawing and re-drawing, until it has not sufficient strength to sustain its own weight, which would indicate that the crimp is essential to a strong sliver or yarn.

Density of Bales

Varying density of cotton bales will affect the strength indirectly through variations in yarn size. High density bales should stand with the ties and bagging removed for a sufficient time to allow them to fluff and soften by exposure to the air. A variation in the picker lap weights will be noticed when changing from a low-density to a high-density bale or vice-versa, or when running a mixture of the two. Yard by yard weighings will show irregular due to varying weight and bulk.

It should be remembered that anything which causes irregularity in picker laps causes some variation in yarn size and yarn strength. An irregular yarn size means an irregular yarn strength and the correction for yarn size and break will not compensate for it. The yarn size may average close to the average number but variations may cause a low skein break.

Any change in length, character, or uniformity of staple in cotton generally is noticed first in the size of the drawing. A lightening of drawing weights, not traceable to temperature or humidity conditions, should be taken as a warning that the cotton has different characteristics. Whenever this sudden lightening of the drawing sliver is noticed, special attention should be given the drawing frame and roving frame tensions, and sufficient twist should be put into the roving to allow its being run in the next process.

Some New Ideas on the Value Derived from Personnel Administration

By W. M. McLaurine

THERE is a trend toward more efficient personnel administration in textile plants, in single units as well as in multiple plant organizations. It is being adopted, of course, in different forms— but all are for the purpose of—and have the prospects of achieving—the objectives set forth in this discussion. Mr. McLaurine has traced the trend and cited the possibilities with clarity and truth . . . . . .

EVERYONE who reads and understands must fully realize that nationally our people have become self-conscious. This means that the average man has become thoroughly alert to what he terms his own self-importance. In this new mental state he has become dazzled with scores of conflicting philosophies endeavoring to tell him how he must conduct himself, and if this conduct is denied him, what he shall do to force his course of conduct upon the great social public of which he is a part.

This new sensitiveness on the part of a great group of people who, heretofore, have not regarded their personalities wit hso much importance, has confused their mind in determining what their rights are and how they shall be regarded. The confusion of conflicting philosophies has still further destroyed their proper perspective.

This condition has brought forth a problem to the employer because he is having to adjust himself and his conduct to the new social demands and inasmuch as there are new features and new phases with which he has not had to deal, he needs assistance in enabling him to interpret and direct this new policy of his managerial demands.

The employee needs some help in trying to get himself adjusted to the new social activity of enriched human personalities in which he finds himself wandering.

For this reason, as well as for others that might be mentioned, every industrial organization of any importance needs a specialized major function for this work. In short, it needs a personnel department directed by a man of intelligence and sympathy and human understanding who can help the management plan its policies in keeping with the new social awakening and can also help the employees determine sanely and sensibly their social and industrial rights and how they may express them peacefully and constructively.

Conditions seem to indicate that this conflict now raging in industry can not be ended by indifference or force or even by legal mandate. It must be handled by a socially educative process at the hands of some one who is not endeavoring to exploit for ulterior methods either on the part of management of any labor organization.

This is the first statement that employers and employees must recognize: both management and labor are confused in a conflict of industrial social ideals that must be ended before there can be industrial peace. Whenever conflict arises it is more than likely that there is error on the side of each party to the conflict. It is quite possible, in the labor unrest and disturbances that have existed in the past few years, that management has been prone to look for error outside of its own domain, and it is quite possible that it has been able to detect error in this field. It is also quite probable that it has not looked for the causes of error that have existed within its own domain and which must be corrected before there is ever a possibility for industrial peace.

Labor is no longer willing to be a casual commodity adapting itself without any question to whatever conditions it may find. Labor wants permanent employment. It wants not merely the necessities of life, it also wants some of the luxuries of life. It is no longer willing to be a number in the great crowd of citizens of America. It wants to be a personality of

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This timely, general discussion of personnel problems, by Mr. McLaurine, brings to mind two excellent articles by Sara Matthews Britt, published in the July and August 1935 issues of COTTON. These described in detail the operation of the personnel and employment department at the Martha Mills, Thomaston, Ga. Copies of Mrs. Britt's articles, which gave the procedure of the Martha plan in detail, are available upon request.—The Editor.

importance. It is no longer willing to accept just any kind of industrial policies that may be read out to it. It wants a part in formulating these policies and wants to know finally that they are permanent, abiding, and dependable.

If industry can sense these demands of labor and with a personnel department can meet them, it seems entirely possible and reasonable that management and labor will not have a rift to come between them bridged by some external organization. If management does not sense these facts and is unwilling to educate its people to the fairness and justice of its policies, then a rift mill come between management and labor, and some militant organization will step in and compel management to recognize the demands of labor and perhaps enact more drastic measures than it would have to do otherwise.

The personnel department with intelligence can easily and reasonably heal and rift or prevent any rift that does exist or may exist in any industrial organization, provided it acts with intelligence and fairness.

The average man, regardless of any new motives or aspirations that may now be giving him serious concern, has his whole being underslung with a sense of justice, and when he is appealed to and treated with policies of justice and when his personality is given the recognition that it deserves he will be found to be reasonable and amenable in all of his dealings.

This means that the personnel department will have to sense policies of fairness, and in many instances it will have to educate management as well as the employees as to the fairness of these policies. It means that the employees will have to become sympathetic and co-operative and believe in the organization in which they work. It means that the employees will feel that they are not simply casual in their connections but that they are permanent insofar as reasonable conditions will permit.

The subject of personnel administration is not entirely new in industry as it has been incorporated in quite a few industries during the last 25 years, but it has not been given the importance that it now seems to demand. It has been restricted in its application. Today it should rank with the financial manager, the production manager, and the sales manager. In a great many respects it will outrank these departments because to a large degree the industrial working force influences finances, production, and sales.

No one will deny that there is much uncertainty and unrest in industry today. This unrest is not altogether an unrighteous indication because progress produces problems and stability of too long duration leads to stagnation. The elements of conflict are largely those of progress and inertia. During the last 25 years science has moved with terrific speed, and science deals with material things in life, upsetting and rearranging our concepts and methods of handling them.

High-powered machines have mechanized manufacturing processes and have speeded up labor. Mass production with its good and its evils has resulted therefrom. There is of necessity a wide gap between executive management and production management. This ever-widening gap has permitted errors and suspicions and misunderstandings to arise. Highly self-sufficient departmentalized operations have caused co-ordination and co-operation to weaken. This is due to the fact that so intense are the demands of each department that oftimes an individual department forgets its relationship with the other departments which make up the whole unit.

As one writer stated some months ago "everyone of us has perhaps a sufficient amount of individual imagination, but none of us has enough of social imagination." In other words, we are able to see our own selves or our own department or perhaps our own duties, but we are unable to imagine ourselves a part of the whole industry or a part of the community in which we operate.

We need to re-define the purpose of business so as to definitely include its social obligation. We need some one to carefully study the social and industrial causes which motivate and control a sensible, sane, and healthy condition of industrial relations.

James O. McKinsey, chairman of the board of Marshall Field & Co., says that we need development on the part of executives of an open research, experimental, evolutionary, and philosophical attitude of mind.

Analyze Industrial Attitudes

This means that we should carefully analyze and tabulate our present, social, and industrial attitudes. This means the attitudes of the executors of industrial businesses. We should then, as far as possible, determine the social and industrial attitudes of the employees, also the social and industrial attitudes of the public. Out of this analysis there should be deduced certain progressive, dependable, elemental principles to be used in determining the course of action.

After this has been done, and this is quite a job, the plan of operation or the method of enacting these principles will demand serious consideration and a lot of work, study, and education.

Practically everything indicated in this discussion is nothing new except in the intensity that must now be devoted to it. Heretofore, management has given only casual consideration to these things. Now, the complexity of the situation is so great that no one in the organization, as it is now constituted, has the time or the intelligence sufficient to deal with this subject; hence, the necessity for a correctly constituted personnel department.

Some one has said that the only excuse or reason for labor organization is an earnest desire on the part of the employees to compel management to announce and abide by certain definite and explicit policies dealing with employees, and further, that if industrial management would have the mental acumen to announce and abide by reasonable, understandable, and fair industrial policies with reference to its employees, there would be no need or fear or occasion for any outside or inside, hostile or antagon-

(Continued on page 77.)

Awarding Pins for Service Records

ALMOST every textile mill is justly proud of the number of "old-timers" on its payroll. This industry is so composed that service records of many years' standing are common, and the old-timers themselves share the mill's pride in long periods of service. Perhaps no single factor in the maintenance of employer-employee good will and mutual understanding is more influential than a corps of employees who remain at a mill year in and year out, serving the interests of contentment and satisfaction among workers, increased efficiency and lowered labor turn-over.

Means of recognition of continuous service at a mill and accounts of what is being done along this line should, therefore, be of interest to all mill managements. This story will tell of the procedure adopted this summer by the Callaway Mills, of LaGrange, Georgia.

Every year, this company, which operates 11 plants in LaGrange, Hogansville, Manchester and Milstead, Ga., and 1 in Roanoke, Ala., celebrates, with a holiday with pay for all employees, the birthday of its founder, the late Fuller E. Callaway, Sr. This year, the event was made the occasion for the awarding of service pins to all employees with continuous service records of 5, 10, 15, 20 and 25 years. A total of 974 white employees and 160 negro employees received the awards. Of the total white employees, there were 482 who received the five-year pin; 296 received the 10-year award; 92 the 15-year pin; 70 the 20-year pins; and the 25-year service group included 34 employees—the real old-timers, with continuous service records of 25 years or more—each of whom received, in addition to the service emblems, a handsome gold watch, engraved with the service record and the name of the recipient. An interesting sidelight is that in this group, a father and son—J. H. and R. L. Farrar, of the Unity Spinning Plant—each received the 25-year award.

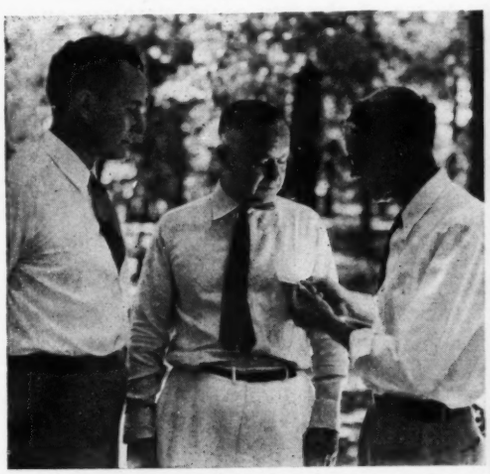
The service pin bears the trade-mark of Callaway Mills—a reproduction of the Fuller E. Callaway Memorial Tower, erected some years ago at the instance and through the contributions of the employees—the initials of the person, with a star for each 5 years of service. The 25-year pins carry a diamond setting. With the pins for the 5-year to 20-year groups, a cash award according to the number of years of continuous service was made.

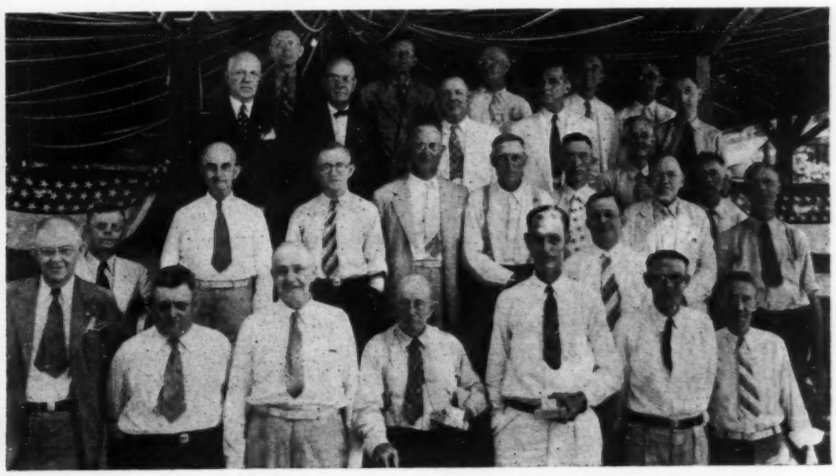
The oldest man in point of service, whose name, like that of Abou Ben Adhem, led all the rest—was Roy Whaley, of the Elm City plant, who has been in the employ of the company continuously for 43 years.

Fuller E. Callaway, Jr., president, acted as master of ceremonies at the awarding of the pins. He received a 5-year pin; his brother, Cason J. Callaway, received a 20-year award. President Callaway awarded personally the pins to those employees with 25 years of continuous service—and Oldest Employee Whaley made the presentation of the pins to Fuller and Cason Callaway.

With this start, the procedure in the case of individuals who attain the various anniversary dates in the future, will be as follows:

In the case of a 25-year anniversary, in the plants, the presentation will be made by the president, in the office of the plant, in the presence of the vice-president in charge of manufacturing, the superintendent and the overseers. On 20-year anniversaries, the presentation will be made by the vice-president in charge of manufacturing in the office of the plant, in the presence of the superintendent and the overseers. In the case of a 15-year anniversary, the presentation will be made by the superintendent in the plant office, in the presence of the overseers. On 10-year anniversaries, the presentation will be made by the superintendent in the plant office, in the presence of the supervisory force of the department involved. On 5-year anniversaries, the presentation will be made by the superintendent in the plant office, in the presence of the overseer and second hand of the employee. For the other divisions of the company, the presentation, except for 25-year employees, will be made by the officer in charge of the particular department. The president will present all 25-year awards.





At left, Cason Callaway receiving his service award pin from Roy Whaley, oldest Callaway employee in point of service (Fuller Callaway looking on). Right, a group of the executives and employees with records of 25 years and longer; each of these received a gold watch and a diamond-studded service pin

Some Pertinent Points on the Card

What do we know about this vital machine, one of the few that hasn't had its face lifted but is still carrying its share of the load

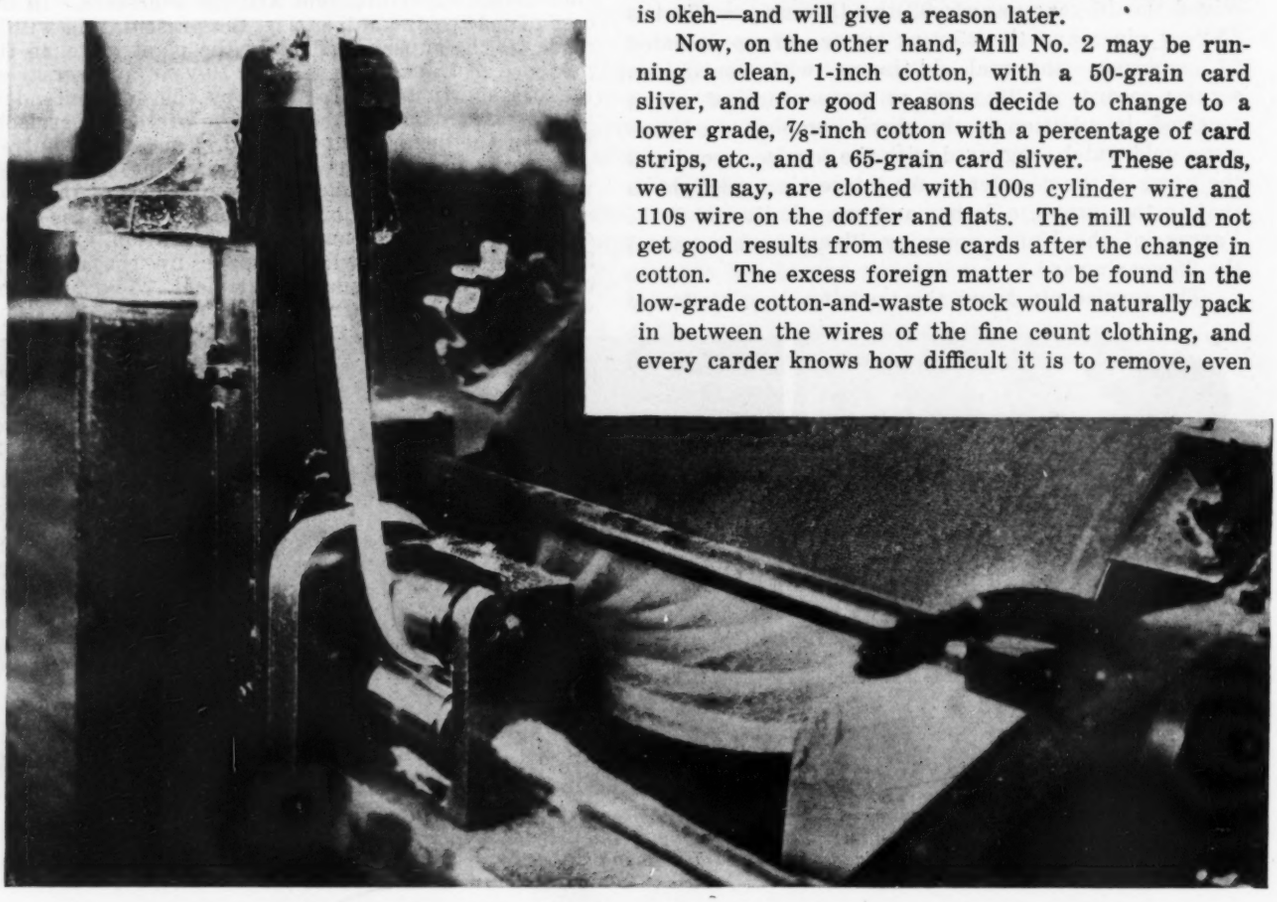
By Miles A. Comer

Saco-Lowell Shops

IF I SHOULD WRITE an article setting forth the facts relating to the life and habits of "toad-frogs", there would be plenty of people to say, "You are wrong", and by the same token, everyone will not agree with what I say about cards, but I am leaving a hole in the wall to jump through, if necessary, by admitting that there can be no concrete set of rules on drafts, settings, weights, etc., that would be correct for even a group of mills, say, on print cloths.

I once received a letter from a mill man asking, without giving any particulars, if I would kindly give him what I thought were the correct settings for a card; in other words, "How deep is a well?"

The card is the last remaining machine in a cotton mill which has not had its "face lifted"; nothing has happened to the card in 30 years, except improvements in accessories, such as card strippers, etc. No high speed doffers, long draft devices or electrical stop motions have been applied. It is about as old-fashioned as the woman who has never had an operation.



We have modern blending systems, with dust removers, in the opening room; one process pickers, one-process 5-roll drawing, various forms of long draft roving, long draft spinning, high speed spooling and winding and warping, high speed slashing, and fast-stepping looms—but the old card is still doing its 165 r.p.m. What can be done about this "antique"? Nothing that I know of—and I haven't met anyone who seems to be lying awake nights worrying about it.

The old card seems to be doing its duty fairly well. But we must make it adaptable to the particular local requirements from mill to mill, and most of us know that this is not always done. As an example: Mill No. 1 may change from low-grade cotton to a higher grade stock with less foreign matter. By all rules and standards this would naturally not require as coarse a wire on the card as for the low-grade cotton (I am speaking of short cotton and waste). My suggestion in such a case would be to leave the coarse wire on the card. In order to be definite, we will call it 90s wire on the cylinder and 100s wire on the doffer and flats. Now, besides going to a higher grade, cleaner cotton, suppose this mill reduces the sliver from, say, 60-grain to 50-grain. I still think the wire is okeh—and will give a reason later.

Now, on the other hand, Mill No. 2 may be running a clean, 1-inch cotton, with a 50-grain card sliver, and for good reasons decide to change to a lower grade, 7/8-inch cotton with a percentage of card strips, etc., and a 65-grain card sliver. These cards, we will say, are clothed with 100s cylinder wire and 110s wire on the doffer and flats. The mill would not get good results from these cards after the change in cotton. The excess foreign matter to be found in the low-grade cotton-and-waste stock would naturally pack in between the wires of the fine count clothing, and every carder knows how difficult it is to remove, even

with a brush stripper. The point I am bringing out is, that anything we can do to reduce the necessity of stripping cards (the meanest job in the mill) will be effort well spent. No card can do proper carding with foreign matter wedged between the wires.

When in doubt, choose the coarser wire. This statement is made with reservation: the element of production enters in. If the cotton is clean, and the card production is around 8 to 10 pounds per hour, use 100s and 110s wire with a 50-grain sliver.

There was a certain mill that decided to run a test using a mixture of cotton waste and jute. The standard clothing was removed from one card and replaced with 60s wire on the cylinder and 70s on the doffer and flats. I imagine that few mill men have seen wire as coarse as this on a cotton card—"it's just not being done". At any rate, after this card was re-clothed as described, the mill decided for some reason to abandon the idea of running any of this mixture of cotton waste and jute, so the card was put back into production on the regular stock of low-grade cotton-and-waste mixture, with a 65-grain sliver, at a production of around 19 pounds per hour. Day in and day out, this card with the coarse wire produced the best-looking sliver in the mill, and this wire was of course much easier to keep clean.

I am not recommending that where a mill finds that the wire on the cards is somewhat too fine for the particular work being run, that they take it off and substitute coarser wire. That is too expensive. But where the clothing needs replacing, it is most important that we get the wire best suited for the work, and not replace 100s wire with 100s wire just because this happened to be the size of wire that the mill has been using for 20 years.

Now, for a few briefly stated but very important pointers:

Don't grind a card too heavily—with a blaze of sparks flying.

Don't grind the flats just because "21 days" have elapsed since the last grinding. Examine the wire. Maybe that isn't the right length of time between grindings.

It is obvious that flat wire is not subjected to the punishment that the cylinder wire receives; emery fillet costs less than card wire, so keep the rolls in good condition.

When "listening" to the grinder as it is pulled down to the wire, always use the *same ear* in setting each end of the grinder. Most everyone has a "good ear"—use that one.

Don't place too much importance on the draft of a card. You have a safe range from 90 to 120. You may find a "spot" in this range which will give a little better result than another. I would prefer a draft on the high side rather than on the low side—in other words, a thick slow-moving feed rather than a thin fast-moving feed. And don't forget to make a good picker lap, or the best card in the world won't make an even sliver.

In closing: Had you ever thought of the card as a blending device? I hadn't, until several months ago a superintendent told me he considered the card one of the best blending machines in the mill. Observing my look of doubt, he took me out to the card room and sprinkled some handfuls of colored cotton on top of the lap going into the card, and, sure enough, when that got through into sliver the dyed cotton was almost perfectly blended in with the remainder of the stock. That's something to think about, anyhow.

Textile Mission Sends Gift to Japanese Conferees

THE MEMBERS of the American textile mission to Japan have sent to their Japanese conferees in Osaka, Japan, a bronze equestrian statue of George Washington, as a token of appreciation for the many courtesies and expressions of friendship received during the conferences in Osaka in January, 1937, which resulted in the Japanese-American understanding on exports of Japanese cotton-textiles to the United States. The statue of Washington, by the noted artist H. M. Shrady, and secured from Tiffany & Co., was selected in the thought that "this figure of the foremost American best epitomizes the spirit of the understanding which was so happily arranged between the representatives of the two countries." It was sent for placement in the Nihon Mengyo Kaikan (Japanese Textile Club) at Osaka where the formal conferences in January were held, and which is the meeting place of the textile executives of the Japanese industry.

The statue, which is 25 inches high, on a base 18 by 5 inches, is inscribed: "Commemorating the way of friendship and goodwill as exemplified by the Japanese-American textile understanding of January, 1937. Presented to the conferees of the cotton-textile industry of Japan by the American textile mission—Claudius T. Murchison, Harry L. Bailey, Donald Comer, Cason J. Callaway, Robert W. Philip."

The statuette of Washington sent to Osaka by the American Textile Mission.

As a memorial to the textile arrangement, the token is sent with a thought also of the great significance of that occasion in its bearing not only upon the welfare of the two industries involved, but also upon its relationship to the entire range of interests between the two countries.

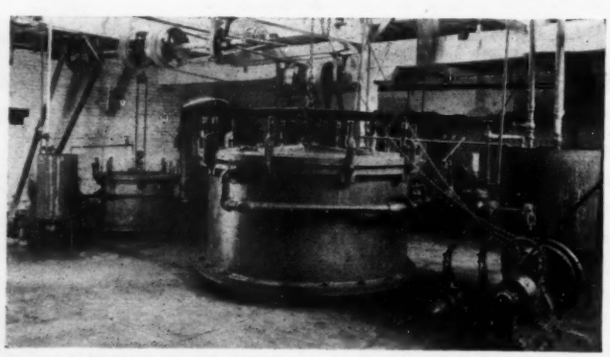
RAYON STAPLE— How to Dye It in Raw Stock

By Heath O. Kennette
E. I. duPont de Nemours & Company, Inc.

THE RAW STOCK DYEING of wool and cotton has been in general practice for many years and consequently is well known. While rayon staple has been used for a number of years, the methods used for raw stock dyeing staple are not well known. This has resulted because the principal uses and modes have not required dyed spun rayon staple yarns.

The great expansion of rayon staple, because of its unusual ability to blend with all known natural fibers, has opened up new avenues of fabric development and recently has indicated the desirability of a knowledge of dyeing the rayon fiber in the staple form before spinning. This rapid expansion of rayon staple in men's and women's novelty suitings has also greatly increased the demand for raw stock dyed rayon staple.

In general, the raw stock dyeing of rayon staple follows the same principles as employed in the raw stock dyeing of cotton or wool; therefore, the problem is relatively simple if one will recognize a few of the fundamental mechanics of raw stock dyeing, and a few of the special physical properties of rayon staple. Rayon staple wets out with water or dye liquor many times faster than cotton. When rayon staple is wet out it swells and thus requires more space. When this swelling takes place in a confined space, the staple greatly resists the flow of liquor through it. The finer the denier, the more dense is the mass, and the greater is the problem of penetration.



Courtesy Morton Machine Works

Rayon staple is dyed in regular raw stock equipment, with special precautions . . . . .

The proper selection of the dyestuff is naturally of vital importance to the successful raw stock dyeing of rayon staple. This is also true for cotton, wool, or any other fiber. Information on the working properties, temperatures, and time cycles of the dyestuffs selected can be obtained from the dyestuff manufacturers.

The most common type of raw stock dyeing machine in use today in the cotton industry is that type of machine which circulates the dye liquor through the raw stock which is in the form of a huge fiber cake. These dye machines are manufactured in both the open and closed type kettle and may be obtained from several reputable manufacturers.

The cotton and wool dyers have developed the proper technique for loading or charging these machines for their respective fibers.

Method for Rayon Staple Dyeing

Rayon staple 1.5 denier or coarser, cut to 1½-inch lengths, can be satisfactorily raw stock dyed in 500 to 800 pound lots in a 1,000-pound machine.

The rayon staple must be thoroughly opened, fluffed up, and uniformly loaded into the dyeing machine. The machine should be loaded in such a way that the density of the cake is sufficient to prevent pressure spots, channeling, and at the same time permit a free flow of the dye liquor uniformly through the cake when the circulating system is started. The greatest trouble experienced to date in the raw stock dyeing of rayon staple is directly traceable to the improper loading of the machine. The successful raw stock dyeing of any fiber, particularly rayon staple, depends on the proper loading of the machine so that the dye liquor can uniformly penetrate the whole mass. A cake that is too dense over all or in spots, as a result of improper loading, does not permit uniform dye application or a rapid exchange of the dye liquor uniformly throughout the cake. This results in pressure spots, channeling, and a tendency for the dye liquor to become exhausted before reaching all parts of the cake. The net result is non-uniformly dyed fibers. In many instances it will be noted that the top or bottom of the cake has been excessively dyed while the remainder of the cake has been insufficiently dyed. Whether the top or bottom of the cake is dyed first naturally depends on the direction of the flow of the dye liquor.

Some rayon dyers like to apply the dye liquor to a wet staple, while others prefer applying it to a dry staple. In either case, the wetting out of the mass is important. This should be done by gravity from top to bottom of the cake by overflowing the dye mixing compartment without starting the circulating pump,

and allowing the staple to wet out gradually. When the staple cake is wet out in this manner, pressure spots are reduced to a minimum. When the machine is properly loaded and the staple is properly wet out in the machine, the remainder of the dyeing procedure is quite normal.

The following method has been used successfully in raw stock dyeing of rayon staple with direct, sulphur, and vat colors applied directly to the dry staple. When vat colors are applied by this method, they are usually in the unreduced form and are reduced on the fiber and subsequently oxidized.

The dyestuff, regardless of type, is mixed and put in solution in a large drum, 50 gallons or more, depending on the load of the machine. The dye liquor is then run into the mixing compartment and the water turned on without starting the circulating pump. This allows the water and dye to overflow and wet out the batch by gravity from top to bottom. When the entire mass has been wet out and the machine is full of dye liquor, the circulating pump is put into operation and the normal dyeing procedure carried out.

During the dyeing operation, the finish put on by the rayon manufacturer is removed and a new finish must be applied. Rayon staple without finish is very difficult, if not impossible, to handle successfully because of the development of static electricity, and the necessity for some lubrication during picking, carding and spinning. The finish must be a good deelectrifier, it must supply sufficient lubrication and pliability for easy opening and drafting of the fibers, and at the same time have sufficient cohesive properties to produce good lap formation and web strength. Many finishes have been developed using ingredients available in the average cotton or wool dyehouse. The finish requirements vary according to local conditions such as type of dyestuff used, time of storage of the dyed staple and yarn, relative humidity in the mill, and denier per filament of the rayon staple used.

The ingredients for the finish are added to the last rinse, or to the last part of the dyeing if no rinse is made. The solution containing the finish is then circulated through the mass for 10 to 20 minutes at 130 degrees F. or more to insure thorough penetration and uniform application.

The staple is then given a normal extraction down to 100 per cent moisture, calculated on the dry basis. The staple is then dried. Rayon staple does not give off its moisture in the dryer as rapidly as cotton, so it is therefore necessary to reduce the speed of the dryer. The staple should come from the dryer free from wet spots and containing a uniform moisture content. The drying temperatures used should be of the same order as used in drying continuous filament rayon.

Before processing the dyed staple in the opening, carding and spinning operations, the staple should be opened up and allowed to condition to uniform moisture content in a humidified area at 55 to 65 per cent relative humidity for 12 to 24 hours.

A summary of some of the more important points in the raw stock dyeing of rayon staple is given below:

1. The staple should be thoroughly opened and fluffed up before dyeing.
2. The dyeing machine should be uniformly loaded.
3. The staple should be uniformly wet out, with dye liquor, in the machine from top to bottom by gravity before starting the circulating system.
4. A new finish should be applied to the dyed staple to replace that washed off during the dyeing operation.
5. The dyed staple should be uniformly dried at the proper temperature.
6. The dyed staple should be thoroughly conditioned before opening, carding and spinning.

Open Knife Cuts

TO MINIMIZE the occurrence of knife cuts developed from the unsafe practice of employees carrying open knives in their pockets, the general superintendent of a large mill adopted the following procedure. A general letter to all employees was posted on the bulletin board calling attention to the fact that in the past 3 years over 50 injuries had been sustained through the employees carrying open knives in their pockets. He stressed the fact that these injuries caused pain and suffering to the employees as well as loss of pay to them and loss of their services to the employer. He then incorporated in his letter a definite order that employees should discontinue to carry open knives in their pockets and expressed his confidence that all loyal employees would obey the order. Two weeks later a second letter was posted referring to the original order and citing the names of several employees who had been observed violating the rule. He then made the definite statement that any further violation would be penalized by a three-day lay-off without pay. He again expressed his confidence that loyal employees would obey instructions, with a parenthetical statement that he was not concerned with employees who were not loyal. Subsequent to this, one employee was observed violating the rule, this man was laid off, and a bulletin was posted explaining the circumstances. Following this, the plant operated for a full year with but one knife accident throughout the entire time.—*National Safety Council News Letter.*

Belt Speed

Sound transmission engineering practice with belting dictates a *minimum* of 1500 feet per minute and a maximum of 6000 feet per minute when used with a pivoted motor base. With a fixed center drive the belt speed should not exceed 4500 feet per minute.

$$\text{F.P.M.} = \frac{\text{Diameter of pulley in inches} \times \text{r.p.m.}}{3.82}$$

Example: 12-inch drive pulley operating at 1200 r.p.m.

$$\text{F.P.M.} = \frac{12 \times 1200}{3.82} = \frac{14{,}400}{3.82} = 3{,}769$$

—*Houghton.*

WHAT CAN I DO TO MAKE THEM THINK?

What executive hasn't asked himself that question over and over again? Your business could forge ahead more rapidly if you could get more of your employees to do a thinking job—but how? The five steps outlined in this article supply the answer that all business is seeking today . . . .

By Robert F. Heller

WHEN AN EMPLOYEE sticks his head in the door and asks a question that one second of thought would have answered for him, does it "burn you up"?

When a man in the machine shop "gums" the works on an important job because he "didn't know", do you see red?

When you have to spend all your time thinking out shop problems or finding short cuts, are you doing your job or someone else's?

The day when one or two men can do all the thinking for an organization has definitely passed. Business has grown too complex, too intricate, for the heads of a business to be able to do the thinking on every individual operation throughout the plant. Important phases of management, selling and finance may command the bulk of your business hours. The thinking you are doing is along broad creative lines. You are the architect building a business; your key employees are the contractors and sub-contractors.

Yet, one idea from an employee—one well-thought-out suggestion—may profitably improve the whole design of your business structure. How can you get these men to offer ideas and suggestions? How can you make them think?

Have you ever stopped to analyze what makes you think and what has influenced the new ideas you have developed for your firm during the past 10, 15 or 25 years?

Suppose in all that time you had never seen a business paper, had never read an article related to your business, never analyzed your production set-up in comparison with others described from time to time, never picked up a short cut or money-saving idea from a trade paper, and never had looked at a helpful piece of direct mail advertising. In short, suppose during your entire business career you had never done any reading related to your business. How do you suppose it would have affected your thinking?

Would your plant and methods be as modern as they are right now? Would you know all the things you know today if you had not done your share of reading during those years of building?

The answer is obvious. Reading does exercise a powerful influence on our thinking. It stimulates us from outside of ourselves. It pours ideas into our minds that tumble around and take shape, to our benefit and profit. It spurs us on, shows us new and easier ways of doing things and encourages us to think and apply the things we read.

What's sauce for the goose is sauce for the gander, yet how many of your key men realize, as you do, the importance of reading publications that deal with your business and their jobs?

Would you really like to know? Then take time out to make a little survey. Ask each key man, right down to your foreman, about his reading habits. Find out what business papers *he* subscribes to, and also, what papers he *reads* on company subscriptions. If you are successful in getting frank, honest answers, you will probably find that reading and progress and efficiency go hand in hand.

"What can I do to make them think?"

It's one of the most vital questions that any executive can ask himself. The answer will help him to multiply his own efforts down through his supervisory force.

There are five steps that you can take to bring about more original thinking in your organization:

1. **Cut the red tape.** In many industrial organizations today are actual barriers that prevent key men from receiving business publications, direct mail literature and sales information. Intentionally or unintentionally, these barriers of red tape discourage circulation-building efforts of trade publications, as well as the distribution of information through the mail. Unless the men can be exposed to this type of

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This article, including the heading, is taken bodily from the July 5 issue of *Steel*, whose editors have graciously permitted its reprinting. We are presenting it here because it conveys a message which we naturally believe will be worthwhile to any textile executive in solving a problem that is common to all industry. The author is associated with Beaumont, Heller & Sperling, Inc., Reading, Pa.

material, how can you expect them to be bitten by the bug of a new idea?

So cut the red tape. Many progressive firms have already done this. When the names of certain individuals are requested for legitimate mailing lists, give them gladly. It won't hurt you, it will help you. When a worthwhile business paper which is sincerely trying to do a helpful job for industry endeavors to win some circulation in your plant, remember you reap the harvest from the seeds they plant.

2. Encourage the reading of business papers. Talk with your men individually about the paper or papers they should be reading to help them do a better job. You can't *drive* them to it, but you can *lead* them to it by showing them how it will help them to get ahead. Encourage them to subscribe for some good publication and have it sent to their homes. A man will be much more likely to become a thorough reader if he gets a magazine at home. Then, too, an individual subscription gives a man a feeling of importance and this stimulates his thinking to justify that feeling. Above all, try to dispel the guilty feeling which many a man still has if the boss walks in when he has a business paper open on his desk. Far better to have him exposed to new ideas than sweating away at his job 8 hours a day with no time to think how his department could be improved.

3. See that business papers circulate and are read. It is of course impossible for each individual to subscribe to all the business magazines he should see, so it is necessary to fall back on the "check and pass on" system. Too often, however, it becomes just that—with the readership practically nil. One executive solves this by asking questions of his supervisory force at meetings concerning articles appearing in current issues of these circulated publications. It keeps the men on their toes and gets the publications read.

4. Ask for suggestions. Many firms employ the suggestion box with considerable success. The bait is sometimes recognition in the company magazine, a cash prize or a bonus based on the value of the idea to the firm. This is always a strong incentive to creative thinking. A man can visualize how he can profit, and, don't forget, his reading will help to make his suggestions more worthwhile.

5. Send them visiting. There is nothing to equal a trip to another plant for starting the old idea mill working. Send your men visiting once in a while and they will come back with new enthusiasm, and a keener appetite for their jobs. Don't neglect the opportunity that trade-shows and expositions offer to bring your men in contact with new ideas and new equipment.

There are many other things you can do, of course, to get your men to think, but these five suggestions give you a concrete program that can be made to pay dividends.

Start the ball rolling now by checking the magazine readership in your plant. Get your men exposed to more reading for more thinking.

The story is told of a company executive who called in an advisory expert to solve a certain production problem. The answer was given promptly, and the executive readily paid $1,000. Later, the expert laughingly told a friend that he had secured the information that provided the answer from a certain business paper and that the particular issue containing this information was lying (unread) on the executive's desk at the time of the interview.

Personnel Administration

(Continued from page 70.)

istic force to interfere with management and its problems.

A personnel department of the right type could and would do this major work in any plant in which it is permitted to operate.

In discussing this subject so far, there have been implications of error both on the part of management and labor. It may seem fair to say that the policies of management may be entirely fair and just and that error arises because they have been unable to properly interpret their policies to those working in plants. Again it may be fair to state that the attitudes and desires of labor may have been fair and just and that they have been unable to properly convey their desires and ambitions to management. In either case, conflict will arise; in either case, this conflict could be averted by a proper functioning personnel department.

From the foregoing it is easily recognizable that personnel administrators are not accidents: they are a distinctive group of social engineers who direct and control human emotions and human intelligence in large groups of industry. They deal with industry from top to bottom. They are the lubricants of industrial life.

Some one has said that the greatest problem for this generation, and perhaps the next, is the problem of learning how to live and work with people under this new rapidly moving scientific world. It ranks only second to the problem of government, and, if properly analyzed, would seem to rank the equal with the problem of government, if not as its superior, because government is the demand on the part of the people for social and economic recognition and protection and rights which the people think they have and cannot secure otherwise.

Hence, a voluntary and intelligent recognition of social forces and a plan to direct them intelligently will frequently obviate the necessity for government interference. This article is a plea for an attempt on the part of industrial managers to seriously and intelligently endeavor to find out what these social forces and social trends are and direct them into safety without interference from organizations of private citizens or the drastic, theoretical mandate of government.

Methods of Fixing Looms

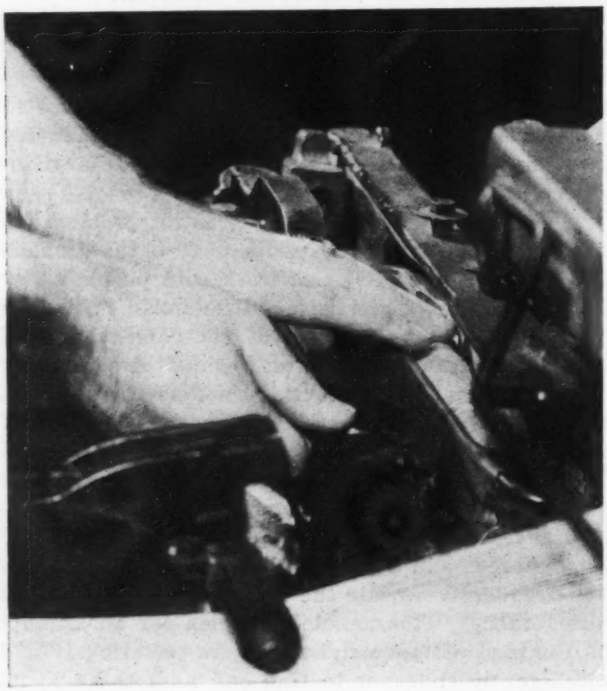
(Article 3, Boxing the Shuttle)

By B. H. Hawkins

THIS is the third installment of a series on practical loom fixing methods. The first appeared on page 43 of the July issue, the second on page 72 of the August issue; thus far the picking motion, parallel motion, the setting of the harness, the beating-up motion, and cover on the cloth have been discussed. This article covers the boxing of the shuttle, the protector motion, and faulty cloth. The author is not offering his statements as cut-and-dried laws of loom fixing, but as the opinions of many, supplemented by his selection of what he believes to be the most suitable method. Copies of the foregoing installments are available . . .

CAN YOU remember the first time you ever entered a cotton mill? If you are anywhere near human you will admit it a rather frightening experience to walk into a large mill for the first time and to report for work. I was scared stiff for the first few days. I was hanging around a loom fixer seeing what I could when one day he asked me if I could box a shuttle. Still clinging to my sophomoric attitude I told him I didn't know, when all the time I knew I couldn't. He told me that if the shuttles were properly boxed, it meant the difference in a good running section and a poor one. He proceeded to show me how. Since that time I have been shown "how" numerous times by different fixers, and most of them had different ways.

So I am fortunate in that I know a whole lot of *ways* to box a shuttle. And yet, only one of them is correct. In my opinion, the worst method I was ever shown to box a shuttle, the fixer placed the shuttle in the box and then put his little finger between the shuttle and the front end of the front box plate. He then pushed the front box plate up until it touched his finger and tightened it up in this position. Then he forced the other end of the box plate against the shuttle until the dagger cleared the frog. If the shuttle bounced after this setting he checked it with the check strap or binder spring, depending on which one had the least check on it at the time.



The knurl of the shuttle should be in the center of the slot where the picker stick works. The shuttle touches the front box plate and binder at the same time . . . . . .

Another fixer boxed the shuttle by lining his front box plate with the screws on the front side of the end lay plate—that of course was only on the lever or left-hand side of the loom. Then he would turn the eccentric in his binder if necessary to get the distance the dagger should clear the frog.

Let me say in connection with boxing the shuttle that good binders and box front leather have a lot to do with the boxing of the shuttle. When either of these becomes worn it is very difficult to box a shuttle so that it will run pick after pick and box the same every time. Were this the only trouble caused it wouldn't be so bad, but stringy selvage, jerked-in filling and so on down the line are also results of bad leather and binders. Therefore the front box plate and binders should be kept in good condition.

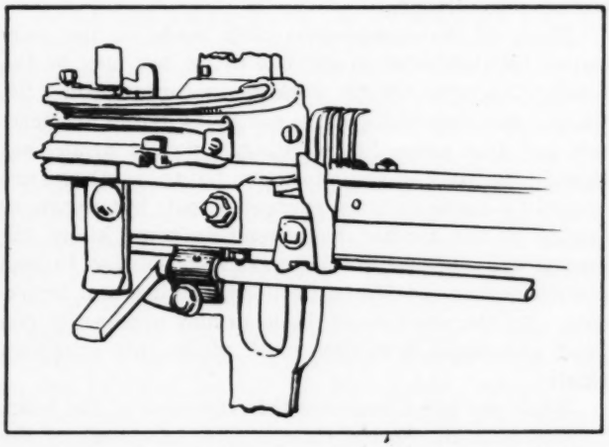
A good rule to follow in boxing the shuttle, so that it will run with the least power and least check, is as follows: First be sure the box front leather and the binder leather are in good condition and that the protector rod finger that rests against the binder *is* against the binder. Then turn the hole in the eccentric steel bushing that fits in the fiber bushing in the binder, all the way to the back. Box the front of the shuttle so that the shuttle touches the front box plate and the binder at the same time and tighten the front box plate in this position. Push the shuttle into the box and move the rear end of the front box plate in until the knurl of the shuttle is exactly in the center of the slot in the end lay plate. If the shuttle can't be centered with the front box plate then use the eccentric in the binder to center it properly.

A shuttle boxed in this way will insure the shuttle's entering and leaving the box properly. For instance, in leaving the box, the shuttle is released by the front box plate and the binder at the same time, and the shuttle is thrown through the shed in a straight line. Whereas, if the shuttle is not released

by the binder and the box front at the same time, it generally has a tendency to be thrown at an angle out of the shed toward the front of the loom. This trouble is usually caused by the front or mouth of the box being too open. This condition existing will also cause the shuttle to rap or rattle going into the opposite box. The shuttle must be properly boxed before good results can be obtained.

Protector Motion Valuable

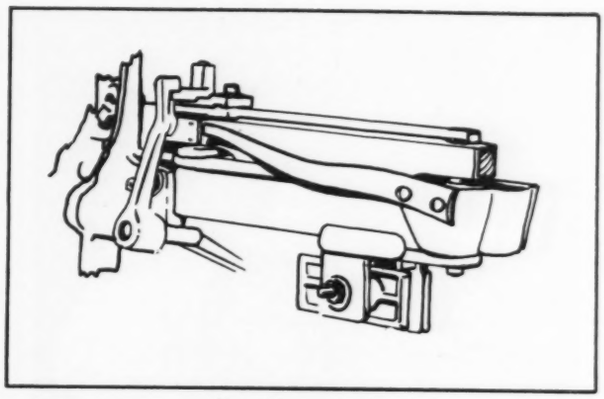
I spoke of setting the protector rod finger against the binder in the foregoing paragraph. Sometimes it seems useless to have the protector rod motion on the loom for all the advantage that some loom fixers take of it. I am reminded, when this is the case, of college boys who have the opportunity to better fit themselves for a career, but instead, waste their time playing pool or in bull sessions and don't or won't take advantage of their opportunities. The protector rods can cause more added work than an ordinary man could correct in a week of steady work if they are allowed to wear out and are not kept set up properly. Whereas, on the other hand, with proper settings and care they pay-dividends every time in a better running job, less waste, lower supply bill, higher production, and goodness knows what else.



The protector rods can cause much extra work, if they are not oiled regularly and kept set properly. Worn protector rods may cause the loom to tip off.

Since these savings hold true, either in part or in full, in regard to the other motions, suppose we look into it a little more closely. If the protector rods in a loom have been running for some time and become worn, the rods have play in the bearings equal to the amount worn. Starting from the top and working down—the shuttle can't be boxed properly while this condition exists.

If the finger is against the binder, the protector rod must move the distance it is worn before the dagger starts lifting when the shuttle enters the box. This means that the loom fixer will have trouble with the loom tipping off—caused by the dagger not being raised either enough or at the proper time, and consequently tipping the frog steel or lip. It may run in this condition for an hour without tipping off, but one added stop per hour on even a very few looms



"The purpose of the binder spring is to hold the binder in contact with the shuttle." The spring should not be bent unduly to act as a shuttle check; the spring pictured here has been bent too much.

means some loss in production. Therefore it can be readily seen that the shuttle will have to be boxed more closely, in most cases by moving in the front box to lift the dagger the desired height. That means more power is required to drive the shuttle up in the box.

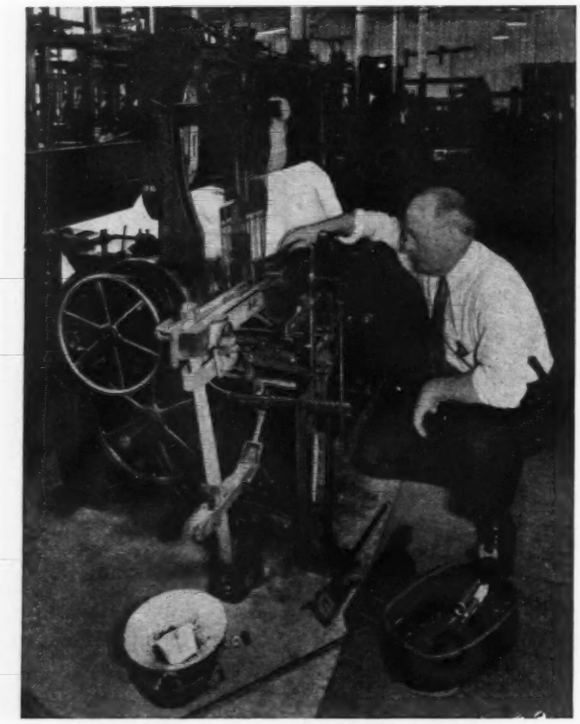
Binder Springs and Check Straps

Two other points I would like to make in connection with this is the binder spring and the check strap. The whole purpose of the binder spring is to hold the binder in contact with the shuttle when it comes into the box. Yet, on occasions too numerous to mention, I have seen binder springs bent until they resemble the shape of a horseshoe, and being used to check the shuttle. You will find the binders being replaced from 3 to 4 times as often as is necessary when the spring is being used as a shuttle check.

The other point has to do with the check straps. I once looked over the section of a certain fixer who ran some of his check straps well over 3 years. I asked him if he turned them or were they special straps or what. He said at first he didn't use the check straps much on his job; instead he kept his power strap up and didn't have to check his shuttle much more than by boxing it properly. Of course that means that the job has to be in good shape from bottom to top, else the power straps start on the journey down the picker stick. When the power straps start down, the supply bill starts up; thus production goes down and wages go down and about the only thing that goes up is the boss (he goes up in smoke) and somebody starts catching the devil, which doesn't mean making the world a better place in which to live. A small splash makes a wide ripple.

Loom Lining

While on the subject of boxing the shuttle I should like for all readers who are interested to get out their July, 1936, edition of COTTON and read again the article entitled "Loom Lining", by J. F. Culpepper. He covers this subject thoroughly and also properly emphasizes it as being important to a good running weave room. When the shuttles start looking as though they have been held against an emery wheel,



Loom lining is an essential function of a good running weave room. It is a tedious job and should not be placed on a strict production basis . . .

you can't expect to box them correctly.

The lay end plate on the right-hand or battery end of the loom is about 3 inches shorter than the lay end of the opposite side of the loom. Approximately the same amount of power is required to force the loom to pick from either side. Therefore a greater check has to be placed on the shuttle when it goes into the box on the right-hand side, due to the shorter distance in which it must be checked. It is readily seen that any tendency on the checking parts to hold the bottom of the shuttle against the end-lay plate would exert a greater force on the shuttle and force it down against the end-lay plate to a greater degree—wearing the under side of the shuttle in proportion.

The slot in the lay-end plate is wider on the battery end to accommodate the outgoing quill on the change. This increased width has a tendency to wear the shuttle on the bottom unless the shuttle is boxed and centered properly. If the center of the shuttle is not in the center of the lay-end slot the shuttle will most likely wear on the side that presents the least surface to the lay-end plate. Suppose, for instance, that the shuttle is boxed so that the center of the shuttle is nearer to the front of the slot than it should be —then the shuttle is most likely to wear on the back side on the bottom.

The shuttle has to be boxed properly before the best results can be obtained.

Another point that I think has been brought out before but might well be mentioned again here is in regard to the setting of the shedding cams. Any setting of the cams which will cause the shed to close on the shuttle before it gets through will hold the nose of the shuttle at an angle as it goes into the box thus causing excessive wear. Should the shuttle have to force its way into the shed before the shed is open wide enough to receive it, ends may be broken as a result. If either condition exists it will kill the power on the loom because the shuttle is retarded in its passage across the lay, and often times causes the loom to slam off as a result. The setting of the harness may also cause the shuttle to enter the box at an angle, so be sure that the harness are not too high off the race plate as the lay moves forward. The temple being too high will tend to hold the yarn too high off the race board at the selvages. This will also cause buttonhole selvage.

Button-Hole Selvage

Mentioning a few more causes of button-hole selvages—not enough doubles in the selvage can and does cause it. Two or 3 selvage threads twisted together forming a cable will sometimes cut the filling and make the selvage button-hole. When this happens separate these ends and try reeding them two per dent instead of 4 per dent. Cloth running slack, shed opening too wide, warped filling bobbins, bobbins not centered properly in shuttle, lint or some other obstruction in the shuttle eye, too much bristle in the shuttle or too much tension on the filling are other causes of button-hole selvage.

Much of the second-class cloth made on the loom cannot be attributed to any one thing, but may be the result of several things working in conjunction. So, when I say that the shuttle not being boxed properly can and does cause kinky filling, I do not mean that this is the only cause of kinky filling as there are possibly a dozen or more causes all told; but improper boxing of the shuttle does result in some kinky filling, as well as jerked-in filling, stringy selvage, broken picks, knocked out filling, dropped bobbins, and break-outs. On the other hand the loom may apparently run good and make first-class cloth while this condition exists.

While we are discussing this function of the loom, I think it is the logical time to look into some of the defects of faulty loom fixing as far as I know them. As a majority of looms today have feelers, I am going to cover these items as being on looms with feelers. Defective cloth on looms with feelers can usually be attributed to the same things that cause bad cloth on looms without feelers, with the feeler causes added. There are so many causes of faulty cloth that it is almost impossible for any one person to cover them all, so please understand that this is not a cut-and-dried list of all causes of seconds on looms, but are the causes as far as I know them. For all I know there may be this many more. I will go into this from the mechanical viewpoint.

The method of putting on and paralleling a new picker has already been discussed, but I would like to say again that pickers put on with the aid of a 34 wrench, or some other flat surface, and then set up correctly by use of the parallel screw, will last longer and cause fewer seconds than pickers that have been battered up and half way paralleled. The shuttle should always be centered in the box before putting

on a picker. Then the picker should be set to the shuttle. Otherwise the shuttle may not strike the picker in the center each time and cause it to be worn one sided. This will result in a lot of additional work and worry for the fixer. Pickers should be inspected for burrs on the rivets and for rough places before being put on the stick. Filling may catch or hang on these places and cause it to break or jerk-in. Picker screws not run flush with picker leather will cause the same trouble.

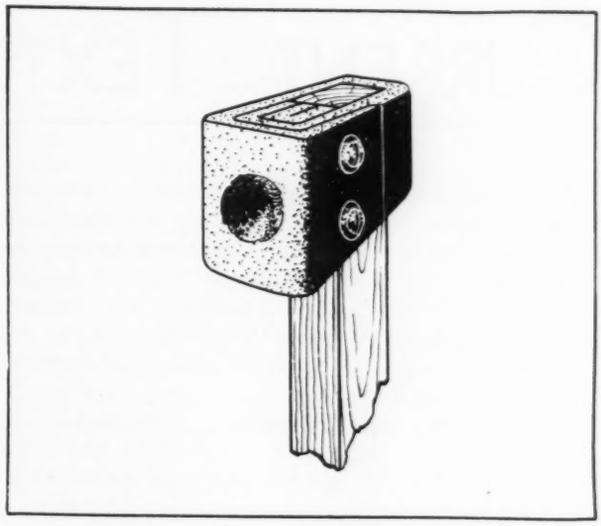
Bad leather on the box front plate or loose leather on this plate will result in the filling hanging on the bad places and slugging it into the cloth. If you will notice the filling in this case you will usually find it to be curled in two or 3 loops right at the selvage. If the groove in the box front leather is worn flat the filling won't follow the groove. Instead it may rise up and loop over the shuttle or may go down and loop under it. It may also be pinched between the shuttle and the box front leather, which will cause it to be broken. This may cause knocked-out filling, stringy selvage, jerked-in, kinky and broken filling. This same condition may apply when the groove in the shuttle is worn down. This groove may be replaced by using a rat-tail file. The filling will also curl over or under the shuttle if there is too much power on the loom or if the shuttle is not boxed properly.

Any rough places either on the front or back of the shuttle will hang the filling and make seconds. Should the concave in the shuttle be worn flat there is a tendency for the filling to be held closely against the wall of the shuttle and to draw it under the shuttle. Should the shuttle feeler knife be too slack, it will sometimes fail to cut the filling. A bad fiber plate, one that is burred on the end or beveled on the inside or worn down, will fail to cut the filling as will a dull feeler knife, which will pinch the filling and sometimes break it, but does not cut it.

Occasionally the shuttle feeler is set too high and the filling goes under it, which of course doesn't allow the filling to be cut. If the shuttle feeler is set too far back the knife won't close, thus not cutting the filling. A rough place on the shuttle feeler mouth will hang the filling and will not allow it to reach the knife to be cut. If the shuttle feeler is tight or clamped on the change the knife springs open which produces the same effect as the shuttle feeler being set too far back. On looms without feelers the temple being set too far back is a cause of jerked-in filling.

A slack warp has the same effect. If the shuttle feeler rides the hook spring the filling will be cut, but the shuttle feeler rebounds so strongly that it hits the trip and opens the knife, thus losing the end which is then jerked into the shed. Should the shuttle feeler be set too deep the knife will clamp so tight when the loom changes that the end is not held in the knife but is cut and dropped. Sometimes the cutter blade is so sharp it cuts the filling and doesn't hold it. The blade may have to be removed and the edges smoothed off a little. It is well to remember that the cutter on the feeler as well as the temple thread cutter must be kept well oiled at all times to insure its working properly.

The thread cutter in the temple is simple and



Burred pickers cause jerked-in filling.

usually presents no great difficulty in being made to function correctly. When the blade, the knife, or the long temple screw wear they have to be replaced. Care should be exercised when setting the temple to see that it is aligned with the selvage correctly and is not sitting at an angle but is perpendicular to the reed. See that the temple is neither too high nor too low; either setting will cause jerked-in filling. Be particular when setting the temple as to depth. The temple should under no circumstances be set so deep that it goes beyond the fell of the cloth. If it is set too far back the filling may break before it reaches the temple knife and is jerked-in. When the temple case wears and can't be aligned it should be replaced with a new case.

The list of defects seems to increase rather than decrease. If the loom is picking early on the battery end, on looms with shuttle feelers, the speed of the outgoing quill will be reduced, and anything that tends to slow the speed, on the change, of the outgoing quill will cause the filling to jerk-in. This same effect is noticed when the transfer hammer is not set deep enough. The shuttle should at all times be kept smooth and free from splinters or other rough places. Such places will cause ends to break, jerked-in filling, stringy selvage, and kinky filling. Some mills make a practice of having the loom fixers sandpaper, tallow, and tighten the eye and spring of the shuttle on the week-end. It is a good practice and shows results not only in less seconds and end breakage but in the reduced wear of the binders and front leather.

Not enough friction of the filling will cause kinky filling, harness being improperly set, or a high harness eye will cause filling to kink. Shuttle spring or eye loose will vary the tension on the filling and cause it to kink. Early or late picking can cause the same result. Other causes of kinky filling have been mentioned throughout this article.

(This concludes the third installment of the series on loom fixing methods. The fourth part will appear in an early issue and will cover the points to be checked when inspecting a new shuttle put in a loom, loom belts, hopper stands, sandrolls, the let-off motion, and that nettlesome job of making the lizard crawl.—The Editors.)

CURRENT TEXTILE TOPICS ....

AUGUST BROUGHT little in the way of favorable trade developments for cotton manufacturers and the industry had to go along its way dependent upon the accumulated business of several months ago. In the midst of a desultory mid-summer period, however, there was nothing like old-time demoralized cotton industrial conditions and it appears that the business has emerged into a new era of reason as to mill operations.

Outlook the saving grace of desultory summer trade

Bearing out a previous statement that the cotton industry, under well regulated schedules, may spread its operations well through the year even if the buying seasons of goods consumers are concentrated, the experience of the past summer may be cited as significant. The manufacturers sensed a dull period of selling before the end of spring and began to curtail. Yet no drastic retrenchment has been seen, because orders were so large.

According to mid-August reports from the primary market for goods, the chief curtailment was elimination of a third shift by the mills. Such a condition was the reflection of unusual accumulation of unfilled orders in the long period of activity through the latter part of 1936 and the first part of 1937. In this period, as statistical reports have been showing, the production of cotton goods rose to unprecedented heights.

Now we have had a summer of continued substantial mill operations, but with a healthy diminution of production as orders have been filled. The consumers of gray goods have given signs of new buying, but the prospects of the fourth largest cotton crop on record made the July start of buying activity prove to be an abortive movement. However, it was indicative of new requirements and an ultimate broad movement.

Uncertainty Caused by Government Forecast

Following the government forecast in August of 15,593,000 bales of cotton, the situation in cotton goods naturally became distinctly uncertain. In the midst of a period when the market was stalled, there was nevertheless an augury of promise. Political Washington shook its head over the calamity of a large crop. Cotton goods merchants, with experience behind them, saw the prospect of another long period of heavy consumption.

Some merchants saw in the combination of low prices for cotton, with commensurably cheap goods, the prospect that the later months of the year might provide business for greater spindle operations than the high rate of the first half of 1937. There was also forecast of a steady, high production for the period from now to late next spring, with the world in need of cotton goods and the prosperity wave making their purchase possible, especially at favorable prices.

While the large mid-summer prognostication for cotton was giving great concern to politicians, the general agricultural picture was one of the basic factors on which goods merchants were banking for broad business the coming months. Bumper crops in a period of recovery, with demand broad, are logically the cause for expectations of prosperity and all estimates favored a high return to farmers, even at reduced prices. This is the foundation of profits for industry in a period of high wages and relatively close prices.

Cotton manufacturers themselves have faced and continue to face such a situation. Despite the sound principles of operation since spring, the market for cotton goods gradually sank through the summer to low prices and mid-August levels were reported to be showing no profit to manufacturers because the decline in cotton was no offset to maintained high wages. Even regardless of the suggested wage and hour legislation, the trend of costs was against the mills, with most materials high and other costs rising.

Retailers Promote Confidence

One of the conditions promoting confidence was the abiilty of retailers through the summer to maintain trade above the 1936 level. This was the foundation for a belief that distributors of finished merchandise would do the best fall business since the year 1929. A report from the National Retail Dry Goods Association forecast retail sales of department and specialty stores for September-November at 10 per cent above that last year and at least equal to that of the year 1930.

Confirmatory of the recovery trend, the United States Department of Agriculture reported that world industrial output, as measured by the production of ten leading international trade countries, reached the highest level in history during the first half of 1937. Production in the United States, it was added, has not yet reached the mid-1929 peak, although it has averaged close to 1929 levels since late 1936.

Widespread industrial activity has been reflected in the gray cotton goods market during the general period of lull through the summer. The demand for heavy goods and specialty weaves, less affected by prices than other lines, was an encouraging feature of business in August. Limitations of output, in fact, made considerations of delivery of paramount importance to consumers of goods for industrial purposes.

THIS district has felt, with all the cotton mill states, the long hiatus of slow buying in cotton goods through the summer. With a high percentage of fine goods manufacture in the industry here and this division of production relatively better off than others to stand a protracted drought in orders, however, New England mills have maintained a good un-

derlying position. They are well situated as a long period of broad new activity is anticipated.

Combed goods producers held strictly to their policy of sound operation through the dull period and hence entered the fall with no heavy accumulation of unsold stocks to give buyers a leverage on prices at a time when they needed supplies. A strong statistical position in fine goods when the pressure on prices for unfinished cottons generally was most severe was a buffer against drastic weakness.

New England Mill Situation

Conditions at the start of a prospective active period for the mills were in notable contrast with those of former times. When goods were accumulated in times of full in demand, mills found themselves selling at bargain levels just at the time buyers were indicating imperative new needs. Profit levels in the recent level were practically wiped out, it is true, yet mills were not found with burdensome stocks to liquidate at the start of a new buying period.

Mills Active on Spring Goods

Regulation of the whole industry has eliminated much of the ruinous competitive condition that once obtained and this accounts to a good extent for more orderly procedure in production through a quiet time. Mills have gone through the summer at a good rate on the spring accumulation of orders. They know that, in the regulated status of the industry, at last the buyers realize the need to cover their requirements reasonably early to avoid late deliveries. Hence there is no gain in pushing for orders at ruinous prices.

Mills incidentally have come into a new position as to wages which is a further spur to sound operation. The Standard Statistics Company recently pointed out that cotton goods mills had raised wages 71.8 per cent since 1933, the largest advance of any industry. Manufacturers in New England, paying the highest rate of wages on record, are hardly inclined to pile up unsold stocks for buyers to bid down on prices.

Incidentally an industry which has gone so far on behalf of the workers without widespread dissension since 1934 (and that trumped up by outside agitators) has found itself largely spared from encroachments by the CIO in spite of its threats made months ago. Furthermore, the American Federation of Labor served notice in the past month that it would fight encroachments of the CIO in the textile industry of this district.

Assuming that the summer slump is merely an interim reaction in a continuing recovery, the cotton industry here is in the midst of an unusual prosperity. As stated in the Boston News Bureau recently, the first half of 1937 brought highly satisfactory earning to the textile companies, fulfilling the promise of the sharp revival in textiles in the latter part of 1936. This has led to an unusual number of constructive actions by cotton and woolen manufacturers, redounding to the benefit of mill shareholders.

"Not for many years," says this paper, "has there been a six-month period productive of so much cheer to textile investors as the first half of 1937."

Among the developments, it is noted that three companies, Berkshire Fine Spinning Associates, Nashua Manufacturing Company and Arnold Print Works, have prosecuted all or nearly all the way to completion re-capitalization plans which will permit resumption of dividends. Another company, the Appleton, formerly of Lowell and now operating in South Carolina, paid off a large preferred dividend accumulation in cash and recently paid its first common dividend since 1926. In addition, a major producer of textile machinery, Saco-Lowell Shops, has recapitalized.

A large number of important companies have increased dividends, or declared substantial "extras". Large profits were created by an unusually favorable combination of circumstances, chiefly a rising price level and a high rate of activity that reached an unprecedented peak in February and March.

At a summer meeting of Booth Manufacturing Company directors, Edward L. Martin was raised from a vice-presidency to the presidency. He had been acting as president since the death of Charles E. Riley some time ago. William C. Zylstra, in charge of manufacturing operations, was elected to the board.

Two textile enterprises of New England recently have been saved to the district. Directors of the Hope Webbing Company, of Pawtucket, R. I., have decided to continue. Samuel G. Camann, who recently purchased the hosiery mill of G. H. Tilton & Sons Co., at Laconia, N. H., stated that he intended to operate the plant.

"THE SITUATION"

As Seen Across an Executive's Desk

August 16, 1937.

THIS JOB of writing a comment on one day about The Situation, to appear in print some weeks later, is a hazardous one, because things change so swiftly. This is particularly true of the Washington situation. I was all prepared to discuss the pros and cons of the wages-and-hours bill, and now, at my "deadline", it appears that so far as the current session of Congress is concerned, it has foundered on the rocks in the House rules committee. From this distance it seems that before these words get into type, even, Congress will have adjourned—for which, glory be!—after tapering off on some other legislation that does not have a strictly textile slant. We are not surprised to be told that wages-and-hours will crop up at the next session (someone else will introduce it, since its sponsor, Mr. Black, earned a Supreme Court seat for his sponsorship, apparently), but let us cross that bridge when we reach it, and meanwhile, discuss some of the other current developments on the textile scene.

Curtailment Discourages Strikes

At this point it is well for us to bring up the fact that the labor situation has changed so materially within the past six weeks that it is no longer the hazard we feared in the early spring. Like the lake on

the 15th hole which caught our golf balls until we started fearing their loss long before we quit playing the first 9, it "dried up" and we found that just a short mashie shot was all that was necessary to cover the one-time watery territory. With public opinion rising in honest gorge at the revulsion felt toward the tactics employed by the CIO, tactics which seemed for a time to be a definite threat toward our national recovery, it is safe to bet that all labor forces will be quiet for a time. To bring the situation a bit closer home; upon the placing into effect of the curtailment program this summer, the reaction among mill employees was certainly AWAY from any strike program, or even a general unionization program.

There is nothing quite so dampening to one's attitude of being downtrodden than to get a dose of involuntary pocketbook lacing. That makes us count our little blessings one by one, chief among which is our own job, and all that a decent job includes. It may not be quite as glamorous or as profitable as another fellow's job, but at the same time it may be a whole lot more so than our back door neighbor's work, so what the heck anyhow? We find a very definite feeling of quietness and acceptance among mill employees generally today as compared to the sentiment of unrest which was almost on the point of flourishing some months back. And so it seems that the TWOC cloud is lifting.

How One Strike Was Prevented

We all become a bit more energetic in the fall, however, and with the expected seasonal pick-up in business we may find that the labor trouble is not as quiet as it seems to be now. We heard, incidentally, of a recent strike threat which was quelled before it began in a rather unique manner. It seems that a certain plant in a certain small Carolina town was being organized by CIO workers and the point of antagonism which they cultivated was "feeling against the superintendent." The management quickly called a mass meeting of the mill employees who had sent a committee in to protest continued employment of the superintendent by the mill, saying they did not care to work under his direction. Said the owner of the mill, "I hired this man to be my superintendent because he is capable and because he knows his job. He is going to keep that job as long as he gives me satisfaction. Now, I can't tell you folks to strike or not to strike. You can do just as you please about that. BUT, I'll say this, I am not dependent upon the profits from the mill for my living. I can live without it. If you want to strike, go ahead and strike, but once this plant is closed by strike it will never open again under my management."

After which the owner took the next train back to Washington and his law practice, the CIO organizer took the next bus out of town to parts unknown and the workers took their places as usual in the mill.

At this season of the year a pertinent and most interesting factor in the industry's sum-up is the oncoming cotton crop. The 1936-37 season which closed on August 1 marked an all-time consumption record by United States textile plants of 7,798,000 bales—the next largest consumption figure having been reached in 1926-27. The crop yield last season was 14,371,472 bales with a value of $1,113,233,054, amounting to almost $200,000,000 more than in the previous season.

A disposition has been made during the past season of 1,550,000 bales of government loan cotton, leaving only 1,665,000 yet under Federal control. The whole world knows that anything carrying bagging and ties is a "bale of cotton" but it is a comforting thought that in the baleage left under government control we find mostly low-grades unfit for high quality consumption.

The Cotton Picture

It is interesting to look back just one year and see in our mind's eye the scurrying around that cotton buyers were engaged in as they made frantic and unsuccessful efforts to cover their orders on old-crop cotton. This year things are more normal and more seasonal. Goods orders still are in a state of "inquiry" instead of actual sales. Mills are taking it easy while waiting for fall business to come in its normal cycle. Cotton salesmen are taking their annual summer tours around to see the mills and getting plenty of entertainment and large chunks of hospitality and golf but few orders on forward cotton . . . and the South looks forward to another bumper crop.

In the Delta alone, where the long staple grows, the baleage for this season is estimated at over 900,000. This, however, includes about 30 per cent of short lengths which the Delta planters have found most profitable during the past season. The great shortage is found in 15/16-inch and the fellow who has that can name his own price, and almost get it.

The development of Sea Island cotton in Florida and southern Georgia has made great strides and it is estimated that this crop will be almost double its baleage of last year. Tire fabric manufacturers are encouraging this development, with the applause of certain specialty spinners.

Harassing legislative uncertainties seem to be the main stagnating influence in the raw cotton trade at this time, with the market dropping in the face of possible non-passage of the crop loan, with the 15-cent high for the past season at New Orleans dropping to an average at ten southern markets of 10.55c on August 12th.

Although at this point a definite buying trend has not been established in either gray or finished goods it is reasonable to believe upon studying the situation that a better fall business is actually on tap than most of us will admit. All we need is for Congress to close its session, give us the medicine they plan to prescribe, and let us have a breathing spell to tend to our manufacturing and selling policies.

The greatest conqueror is he who overcomes the enemy without a blow—the greatest machine fixer is the man who does the job correctly.

"A vacant mind is open to all suggestions as a hollow building echoes all sounds."—Chinese Proverb.

A man could save 20 years of his life by studying the experiences of others.

WHAT THE SOUTHERN MILLS ARE DOING

AMERICAN SPINNING COMPANY, Greenville, S. C., has completed a remodeling and improvement program costing about $250,000. Houses in the community have been re-painted and repaired, and considerable remodeling work has been done in the mill. New machinery also has been installed.

Whitney (S. C.) Manufacturing Company has developed a plan for selling the homes in the mill village to the employees. This is a complete change of system from the usual custom. The employees make a small down payment and then may pay the rest of the cost in small installments. By this method the purchaser may live in his own home and pay for it on the rental basis.

Leward Cotton Mills, Worthville, N. C., are installing a Parks-Cramer Company overhead cleaning system. The company is also installing 15 second-hand cards.

Jordan Mills, Inc., is the name of a company that has been granted permission to incorporate and erect a plant in or near Columbus, Ga.

Bowling Green (S. C.) Spinning Company is erecting an annex, 66x28 feet, which will house additional carding machinery.

Threads, Inc., Gastonia, N. C., have purchased part of the old Ozark Mill in Gastonia, it is reported, and will install 7,000 spindles.

Minnewawa Manufacturing Company, Marlboro, N. H., makers of woven labels, will start a branch plant at Mount Airy, N. C., it is reported. About 35 workers will be employed at first. The plant will use silk, rayon, and cotton as raw products.

Sanford (N. C.) Cotton Mills have completed the construction of 10 homes for the operatives of the plant. The company has also built a new annex and has installed 3,000 spindles in it.

Neely Cotton Mills, York, S. C., is planning an extensive system of modernization which will represent an expenditure of about $100,000. The program includes the installation of long draft spinning.

Stonewall (Miss.) Cotton Mills, Inc., are making many improvements in the plant and new additions are being built to the mill proper.

Burlington Mills, Inc., are building new administration offices in Greensboro, N. C. The structure will be a two and three-story affair with indirect lighting, air conditioning, and recreational facilities.

Statesville (N. C.) Cotton Mills are erecting a new office building.

Dunean Mills, Greenville, S. C., are constructing a two-story warehouse to be used in storing cotton. It will cost about $8,000.

Hermitage Cotton Mills, Camden, S. C., have installed 100 X-Model looms. The floors in the plant have also been renovated.

Wade Manufacturing Company, Wadesboro, N. C., has made many improvements and additions to the plant. New cleaners for the picker and napper divisions have been installed; a new dye plant has been equipped, and 80 new looms have been installed.

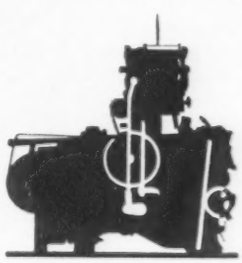
American Enka (N. C.) Corporation has installed an air-conditioning unit. The Cooling & Air Conditioning Corporation, a subsidiary of B. F. Sturtevant Company, doing the work.

Cloverdale Dye Works, High Point, N. C., has installed a two-kier 600-pound dyeing unit and an 8-port combination package and beam drying unit, complete with blower.

Marshall Field & Company, manufacturing division, has transferred the wide sheeting looms of its Spray (N. C.) plant to the new mill at Draper (N. C.) where the sheeting manufacture of the company is being concentrated.

Moore Cotton Mills Company, Valmead, N. C., has rebuilt a number of homes for its workers that were destroyed by fire sometime ago.

Southern Mercerizing Company, Tryon, N. C., has let a contract to Barber Bros., Mooresville, N. C., for the construction of a new plant.



Norlina Cotton Mills, Inc., Charlotte, N. C., have been granted a charter with a capital of $100,000. It will be operated at the present location of the Gray Manufacturing Company on East Franklin Ave. Yarns and fabric will be produced.

Panola Mills, Inc., Greenwood, S. C., is a new concern that will manufacture cotton, wool, rayon, and silk goods in a diversified range.

Durham (N. C.) Hosiery Mill, Plant No. 6, is having the Dixie Spindle & Flyer Company, Charlotte, N. C., overhaul the machinery by the Guillet overhauling system.

Lone Star Bag & Bagging Company, Houston, Tex., will undergo an expansion program costing about $75,000.

Osage Manufacturing Company, Bessemer City, N. C., has built a 3-story addition to its plant, 56x187 feet. New machinery installed includes 5,016 additional spindles and 84 looms.

Springs Cotton Mills, Kershaw, S. C., are constructing 17 new homes for the employees.

Gainesville (Ga.) Cotton Mills have revamped the carding and spinning rooms. A number of the spinning frames had already been changed to Saco-Lowell long draft, and 24 fly frames were in place. The picker room has also been remodeled.

Graniteville (S. C.) Manufacturing Company has installed a 600 hp Leffel vertical shaft water wheel turbine, coupled directly to a Westinghouse generator.

Arnall Mills, Sargent, Ga., have installed 5,500 spindles of spinning. This work has been done under the direction of Yates D. Smith, Gastonia, N. C.

Industrial Cotton Mills Company, Rock Hill, S. C., closed during a slack period recently and had the plant building painted and repaired.

Mooresville (N. C.) Cotton Mills have purchased 35 new patented Monel wire screen beams for the dyeing equipment from the Gaston County Dyeing Machine Company, Stanley, North Carolina.

COMMENT on the Cotton Market

New Orleans, August 14, 1937.

THE CONTINUANCE of generally favorable weather for the growing crop in the cotton region up to the close of July and improving crop accounts, which was reflected in private large crop estimates and subsequently confirmed by the first official crop forecast of the season, coupled with a slow demand for the raw product and finished goods during the period, caused an important decline in the cotton market during the past month, spots showing a loss of about $12.00 per bale compared with one month ago.

This year's indicated crop is 25.8 per cent larger than the 1936 crop, and the indicated yield per acre for the United States is 25.7 pounds larger than the yield in 1936. The previous record was 223.1 pounds per acre in 1898. The average condition of the crop was the highest reported since August, 1911.

Last season the North consumed 246,000 bales more lint cotton than during the previous season, the South consumed 1,323,000 bales more than in the season before last, but foreign spinners used 721,000 bales less of American than during the previous season.

While the indicated American crop on August 1 was very large, the crop is not made yet. There is a marked deficiency of moisture in the northern half of Texas and in Oklahoma, and there is the possibility of too much moisture in the Atlantics and of damage by boll weevil, especially in the eastern belt. Already crop accounts from the dry areas of the western belt are less favorable than they were two weeks ago.

Since release of the government crop forecast August 9, due probably to spinners taking advantage of the low price and fear of possible legislation in the interest of better financial returns to farmers, and the uncertainty of the future progress of the growing crop, there developed a good demand for raw cotton in the South. On the other hand, however, there has been a slow demand for cotton goods in the North, buyers apparently awaiting lower prices for the finished article before buying in volume.

Substance of Washington's weekly weather and crop summary for week ended August 10: In the cotton belt temperatures were abnormally high in the West and Northwest and moderately above normal in other sections. Rainfall was mostly light to moderate in the form of local showers, with very little in western portions of the belt. In eastern and central districts progress of cotton during the past week continued mostly favorable, but in the west the absence of material moisture and the high temperatures have become unfavorable over considerable areas."

Cotton ginned to August 1, new crop cotton, totaled 142,983 bales compared with 41,130 ginned to corresponding date last year and 94,346 in 1935. The early large ginnings indicate the probability of a free and early movement of new crop cotton to market, and it is probable that much hedging may have to be cared for in the contract market.

As to the future course of the market, much will likely depend on developments in Washington as regards the clamor for a federal loan, etc., on this year's cotton crop, on future climatic developments in the cotton region, and on the future progress of the growing crop. A period of dry weather is apparently needed in the eastern belt, and a general heavy rain is urgently wanted in the western belt, except in south Texas. Because of the good crop prospects in the United States this year, the business outlook in America remains cheerful, and late advices from Europe are encouraging, especially as to the textile trade which is reported good, indicating the probable need of larger imports of American cotton than last season, perhaps to the extent of about one million bales more than was imported last season. There is talk of the probability of a larger foreign cotton acreage this year, but if European trade continues to expand, a larger foreign crop than last years' record production may be needed, as the political situation abroad, except in the Orient, is considered better.

GOVERNMENT COTTON CROP FORECAST, AS OF AUGUST 1

	This season	Last season
Estimated acreage for harvest	33,429,000	30,028,000
Condition of crop	81.3	72.3
Indicated yield per acre, pounds	223.3	197.6
Indicated crop, bales of 500 lbs. gross wt.	15,593,000	12,399,000

WORLD'S CONSUMPTION OF AMERICAN LINT COTTON (AS REPORTED BY THE NEW ORLEANS COTTON EXCHANGE)

Bales—Season—	1936-37	1935-36
United States—North	1,221,000	975,000
United States—South	6,577,000	5,254,000
Foreign	5,455,000	6,176,000
World	13,253,000	12,405,000

WORLD'S CARRY-OVER OF AMERICAN LINT COTTON

July 31—Bales—	This year	Last year
Lint	5,740,000	6,732,000
Linters	368,000	263,000
Total	6,108,000	6,995,000

INDICATED WORLD'S SUPPLY OF AMERICAN LINT COTTON

Bales—	This season	Last season
World's carry-over, August 1	5,740,000	6,732,000
Indicated crop, Aug. 1, gov. est.	15,593,000	12,399,000
Indicated world's supply, Aug. 1	21,333,000	19,131,000

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES

Year—	1937	1936	1935	Normal
July	1.99	4.24	2.31	2.63
November 1 to July 31	16.79	21.64	28.48	22.22

Folder by Lewis-Shepard

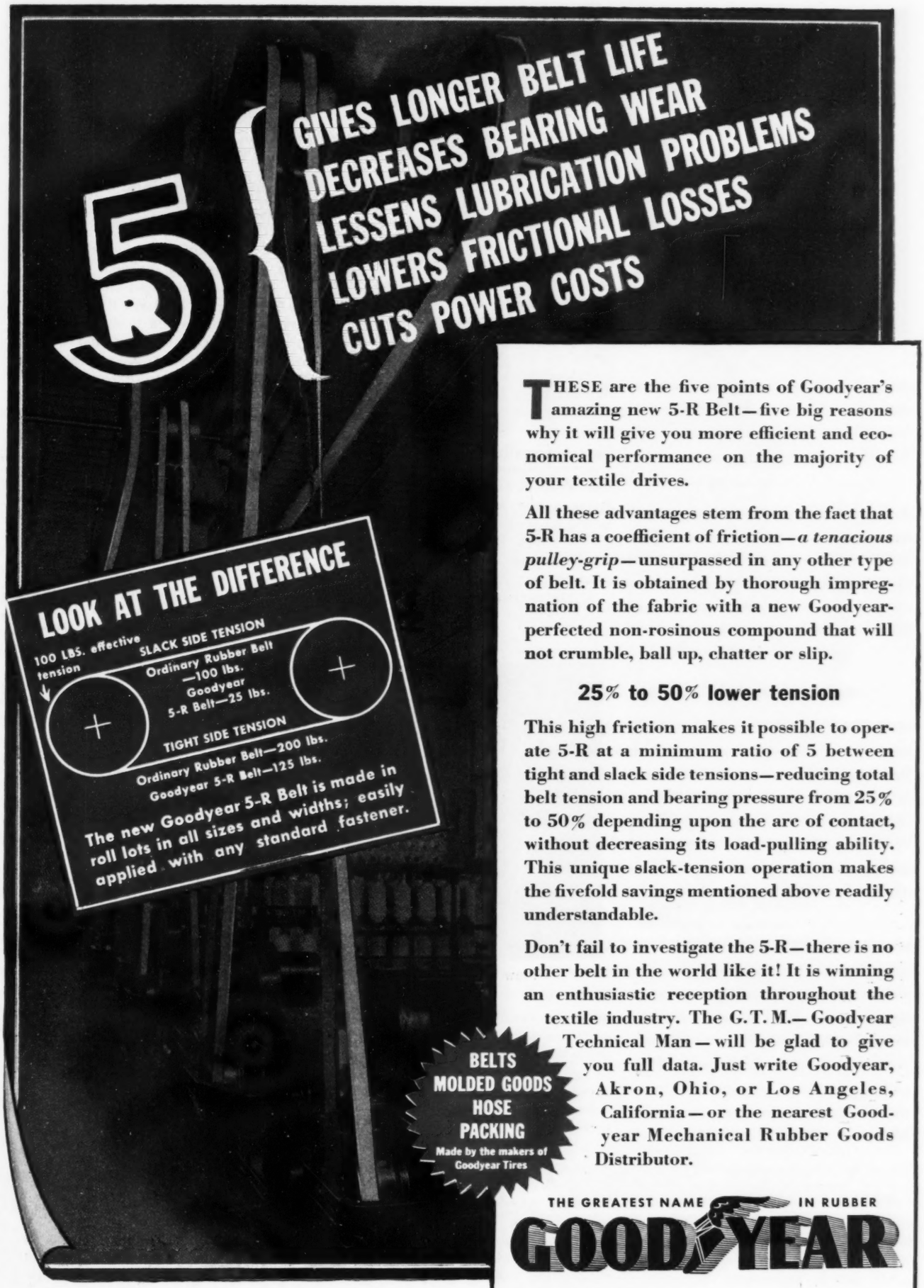
Lewis-Shepard Company, materials handling engineers, 175 Walnut St., Watertown, Mass., has made available a new colored folder, No. 508, showing the uses and types of stackers, tiering machines, and portable elevators for piling goods and products from the floor to the ceiling, to provide additional manufacturing and storage space at no extra expense, and without the necessity of erecting or leasing additional buildings.

New Flow Meter Electric Integrator

The Bristol Company, Waterbury, Conn., has designed a new electric integrator which totalizes flow once every 15 seconds, used for measuring the flow of a gas or non-viscuous liquid through a closed line. A flat disc cam is specially designed to coincide with the flow law so that it mechanically computes the square root of the differential pressure across an orifice plate or venturi tube constriction in a pipe line, at 15-second intervals.

New Dart Union Catalog

E. M. Dart Manufacturing Company, Providence, R. I., has made available a catalog giving complete data on Dart pipe unions and fittings, including color illustrations, dimensions, and materials and methods of inspection used in the manufacture of the unions. It also illustrates the processes of precision machining and oscillating—grinding the special two bronze seats—cutting accurate threads on tapping machines—and testing the finished unions with air under water.


5R
GIVES LONGER BELT LIFE
DECREASES BEARING WEAR
LESSENS LUBRICATION PROBLEMS
LOWERS FRICTIONAL LOSSES
CUTS POWER COSTS
LOOK AT THE DIFFERENCE
100 LBS. effective tension
SLACK SIDE TENSION
Ordinary Rubber Belt —100 lbs.
Goodyear 5-R Belt—25 lbs.
TIGHT SIDE TENSION
Ordinary Rubber Belt—200 lbs.
Goodyear 5-R Belt—125 lbs.
The new Goodyear 5-R Belt is made in roll lots in all sizes and widths; easily applied with any standard fastener.

THESE are the five points of Goodyear's amazing new 5-R Belt—five big reasons why it will give you more efficient and economical performance on the majority of your textile drives.

All these advantages stem from the fact that 5-R has a coefficient of friction—*a tenacious pulley-grip*—unsurpassed in any other type of belt. It is obtained by thorough impregnation of the fabric with a new Goodyear-perfected non-rosinous compound that will not crumble, ball up, chatter or slip.

25% to 50% lower tension

This high friction makes it possible to operate 5-R at a minimum ratio of 5 between tight and slack side tensions—reducing total belt tension and bearing pressure from 25% to 50% depending upon the arc of contact, without decreasing its load-pulling ability. This unique slack-tension operation makes the fivefold savings mentioned above readily understandable.

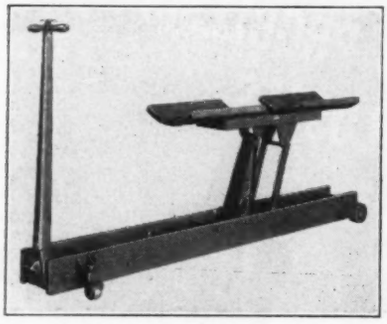
Don't fail to investigate the 5-R—there is no other belt in the world like it! It is winning an enthusiastic reception throughout the textile industry. The G.T.M.—Goodyear Technical Man—will be glad to give you full data. Just write Goodyear, Akron, Ohio, or Los Angeles, California—or the nearest Goodyear Mechanical Rubber Goods Distributor.

BELTS
MOLDED GOODS
HOSE
PACKING
Made by the makers of Goodyear Tires

THE GREATEST NAME IN RUBBER
GOODYEAR

NEW TEXTILE EQUIPMENT—PUBLICATIONS

Hydraulic Lift Truck for Large Loom Beams



The hydraulic lift truck shown above, developed by the Stackbin Corp., Providence, R. I., for handling large loom beams, was described on page 88 of the August issue of COTTON.

"Controlled Manufacturing"

H & B American Machine Company, Pawtucket, R. I., has published a 27-page catalog entitled *Controlled Manufacturing* which is a discussion of card room testing equipment. It describes the uses of the Belger automatic roving tester, stating that this machine makes it possible to adjust properly the tension, the roll spacing, the gearing, the weighting, and the twist on a roving frame. It also is said to detect worn top rolls. The machine does not make these adjustments itself, but it does disclose the results of maladjustments so that they may be corrected. Other testing devices described are the H & B patented sliver tester and the company's patented roll spacing determinator.

Interesting Folder on Oil-Spraying by Texas Co.

The Texas Company, 135 E. 42nd St., New York City, has made available an interesting folder entitled *Cotton Conditioning with Texspray Compound.* The folder brings out the salient points of the why and wherefore of using Texspray, and gives some of the results that may be accomplished through its use. It is well illustrated and carries a line drawing showing just how the preparation is applied.

Bulletin on Meehanite Metal

The Cooper-Bessemer Corporation, Mount Vernon, O., has released a bulletin on Meehanite metal, a metal of which the basic principle for making was discovered in 1923 and has been developed since that time. Shown in the bulletin are installations of the metal, and an interesting micro-photo cut of this metal as compared with other iron products. Tables showing the endurance limits of the metal in comparison with other metal products are given.

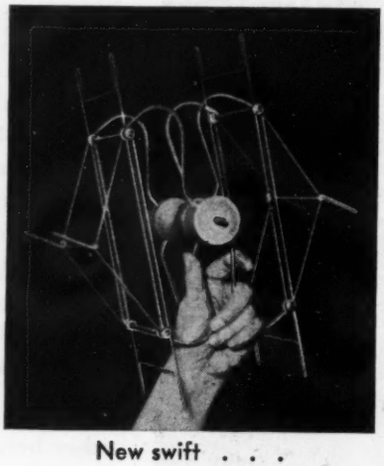
Fairbanks, Morse Bulletin

Fairbanks, Morse & Company, 900 S. Wabash Ave., Chicago, Ill., have published Bulletin No. 3600-A2 which is descriptive of and illustrates the construction and application of the Model 36-A Diesel generating sets. These sets may be used in industrial plants, either as independent units carrying the entire load or for parallel or auxiliary operation in conjunction with other electrical service. Their compact design fits them for service on machines requiring individual power plants.

New Automatic Swift

Atwood, Crawford Company, 5 Central Ave., Pawtucket, R. I., are marketing a new automatic swift, known as the "Adjust-O-Matic" Swift, invented by Arvid F. Pearson. The chief feature of the swift is its self-adjustment.

In the illustration, the new swift is shown held in the hand ready to receive the skein. In this position the swift can be instantly adjusted to the desired circumference. When the grip is tightened, the circumference is reduced; when released, the swift is self-expanding through a built-in spring tension. The design of the swift is such, it is explained, that the six outer cross-members which support the skein will move toward or away from the axis simultaneously and equally, so that these cross-members are always equi-distant from the axis. This, it is pointed out, produces a uniform tension for holding the yarn without stretching to distort it. It is further pointed out that the application of the skein to the swift is readily achieved; the operator holds the swift in one hand and places the skein in position with the other. Correct tension on the yarn minimizes slack, slippage and bunching up of the yarn.



New swift . . .

New Colors by Du Pont

E. I. Du Pont de Nemours & Company, Inc., dyestuff division, Wilmington, Del., has announced two new colors, Celanthrene Brilliant Blue 2G, the latest addition, which is applicable to all forms of acetate fiber, and which is recommended for producing light blues; also, Pontamine Diazo Violet BL, a developed color, is recommended for development with beta naphthol. It is resistant to acids, ammonia, dry stoving, moist pressing, mercerizing, cold and salt water.

Continental-Diamond Bulletin

Continental-Diamond Fibre Company, Newark, Del., has made available a new bulletin on Celoron Silent Gears, which is quite a complete treatment of the subject. It explains that Celoron is manufactured by impregnating sheets of woven fabrics such as cotton duck or linen with a synthetic resin, super-imposing one sheet upon another until the required thickness is attained and then subjecting the entire mass to accurately controlled pressure and heat in powerful hydraulic presses. Gear information, recommended practices for machining the gears, and horsepower ratings are given.

Book on Commercial Motors

The Louis Allis Company, Milwaukee, Wis., has issued a 60-page book that describes the construction, features, advantages, and applications of practically every commercial type electric motor. It also includes valuable engineering data on various types of special motor applications and construction. There is also a detailed analysis of the characteristics of squirrel cage motors, motors for centrifugals, etc.

Steam Pump Bulletin

Fairbanks, Morse & Company, 900 S. Wabash Ave., Chicago, Ill., have published Bulletin No. 6205 describing a wide range of pumping applications. They have been designed to pump water, oil, and similar liquids at pressures up to 420 pounds per square inch and in quantities up to 464 gallons per minute.

WHAT CORK'S ABILITY TO RESIST LATERAL FLOW *means in mill efficiency*

ONE of the most important advantages of cork is its ability to take compression without expanding in the opposite direction. This ability to resist lateral flow is the result of cork's unique cell structure—consisting of millions of minute cells of confined still air.

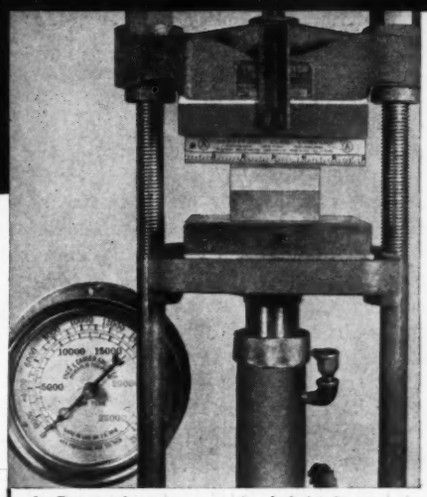
When cork is compressed what actually happens is that *only the air within its cells* is compressed. Dimensional change takes place only in the direction in which pressure is applied. Hence, cork does not spread or flow laterally. Under pressure its width remains practically the same.

Better Line Contact

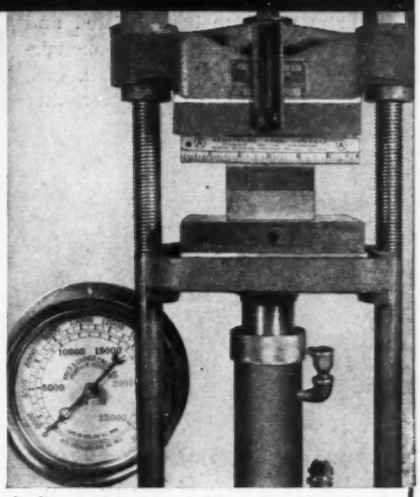
One result of cork's unique resistance to lateral flow is its better full length contact with the bottom steel roll at all times. The cot springs back quickly when pressure is released. This means a truer, more positive draft and a greater spinning efficiency. There is no tendency for "bellying out" or becoming barrel-shaped—and there are no loose cots due to stretch.

This resistance-to-flow characteristic, together with cork's high coefficient of friction, durability, resilience, and resistance to liquid penetration, helps provide a roll covering that spins stronger, more uniform yarn, wears longer, requires fewer roll changes, and, in the majority of mills, cuts roll covering costs by 50% or more!

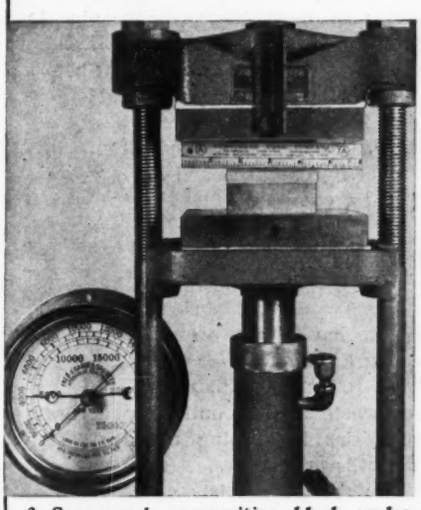
If you'd like the complete story of cork's unique spinning properties—also samples of the new Armstrong's *Extra Cushion* Seamless Cork Cot—call your nearest Armstrong representative or write direct to Armstrong Cork Products Co., Textile Div., 923 Arch St., Lancaster, Pa.



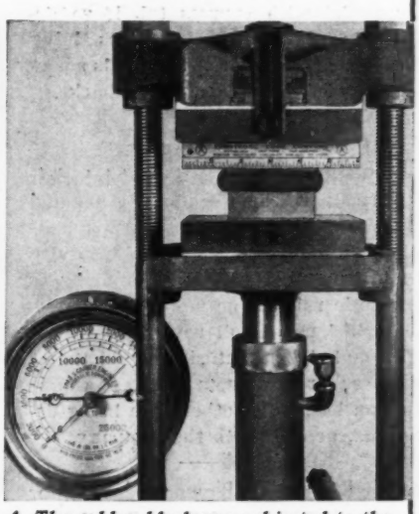
1. Start of test on cork. A 3-inch square block of the composition used in Armstrong's Cork Cots is placed between the steel blocks of a hydraulic press.



2. Start of test on rubber. A rubber block of the same size, thickness, and hardness of the cork composition is tested under similar conditions.



3. Same cork composition block under compression of 4,000 pounds per square inch. Width of the block is practically the same as in the picture above. Convincing proof of cork's resistance to lateral flow.



4. The rubber block was subjected to the same pressure of 4,000 pounds per square inch. Notice the extrusion of the material beyond the normal width of the block measures almost ¼ inch on each side!

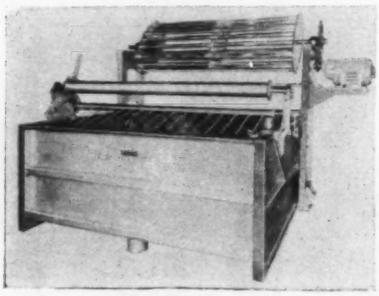
FOR SPINNING AND CARDROOM ROLLS

ARMSTRONG'S EXTRA CUSHION SEAMLESS CORK COTS

ARMSTRONG HAS MADE CORK PRODUCTS SINCE 1860

"Fleet Line" Stainless Steel Silk and Rayon Dye Beck

Riggs & Lombard, Inc., Lowell, Mass., now has available a new "Fleet Line" stainless steel silk and rayon dye beck for fabrics that are both knitted and woven. The stainless steel construction, including tub, reel, pinrail, etc., assures long life and freedom from dirt



New dye beck . . .

and stains. The entire weight of the motor, reel, and drive is carried on the outside separate cast iron stands, thus relieving the tub of all driving strains. The company is able to furnish a similar model with cypress tub if so desired, in which case a stainless lining for slope and bottom of the tub is sometimes added to eliminate rub marks.

Armstrong Enters Field of Synthetic Rubber-Like Materials

Armstrong Cork Products Company, Lancaster, Pa., has distributed a leaflet describing the company's service that is now available on products of synthetic rubber-like materials for textile mills' use. Roll coverings, temple rolls, and ribbon material for frictional purposes are products now on a production basis, and others are being developed, according to the company.

V-Belt Drive Unit Blower. Also Vapor Explosion Proof Propeller Fans

Autovent Fan & Blower Company, Chicago, Ill., has developed the Autovent V-belt drive unit blower to meet a specific need for a combined unit for installations where, on account of local conditions, the V-belt drive unit is considered more desirable than a direct connected blower. This new arrangement involves the Uniblade Type H blower that is operated by a standard frame motor equipped with a suitable V-belt drive. The motor is mounted on a steel pedestal base, built integral with the blower housing, and making a compact unit which is easy to install and which insures flexibility of control. The blower is available in sizes from the 12½-inch wheel to the 25-inch wheel. The company also makes a non-overloading vapor-explosion proof propeller fan for use where excess explosive gases and chemical fumes exist and must be removed. A full set of bulletins has been prepared describing these new devices and may be secured from the company.

Leaflet on Wedgbelt Pulleys

The American Pulley Company, 4200 Wissahickon Ave., Philadelphia, Pa., has made available a leaflet descriptive of and illustrating the new adjustable diameter Wedgbelt pulleys. There are many economical applications of the adjustable diameter sheaves, it is explained, in that they provide a means of securing positive speed adjustments which are not otherwise secured. Merely by loosening a set screw and turning the flange of the threaded hub, the position of the V-belt against the side walls of the pulley is regulated.

Book by Morse Chain

Morse Chain Company, a division of Borg-Warner Corporation, Ithaca, N. Y., has announced its 1937 *Silent Chain Engineering Data Book*, which is a 20-page book containing detailed information that plant engineers and production men most frequently require in plan and specifications for silent chain drives. A partial list of the new book's contents includes horsepower tables, explanation of the different types of silent chains and their applications, layouts of typical shoes and idlers, sprocket data, etc.

Fleet Line Soap Distributing System

Riggs and Lombard, Inc., Lowell, Mass., have recently made available a new *Fleet Line* soap distributing system. It is used to distribute soap without waste and in uniformly accurate quantities to soaping machines, fulling mills or washers.

The system consists of a series of supply tanks with feed pipe line and return pipe line leading to and from the soaping machine, fulling mills or washers. The liquid soap is forced through the pipe line by means of a motor driven gear pump. Each individual supply tank is provided with a shut-off valve both on the feed line and on the return line, and similar valves are also located on the branch lines leading to the individual fulling mills, or other machines. Thus any unit can be cut out of production at will or all production units can be cut out, in which case the pump is used to circulate the soap through the system in a continuous cycle so that it will maintain a creamy, fluid consistency. No step ladders or buckets are required as in hand feeding, thus reducing physical hazards. The amount of soap fed to each machine may be scientifically controlled as each individual feed line is equipped with a clock meter similar to that used on the latest type gasoline pumps.

Stainless Steel Booklet

Republic Steel Corporation, Cleveland, O., has published a new 12-page booklet entitled *True Colors, Quick Color Changes—with Textile Equipment of Enduro Stainless Steel*. It is the result of several years' research on the part of the technical staff of Republic, in collaboration with textile dyers and bleachers in a number of plants. The booklet sets forth in the textile man's language, the properties and fabrication of stainless steel, describing in detail the types of Enduro stainless steel best suited for this type of application.

Complete Range of Self-Aligning Bearings Now Made by Fafnir

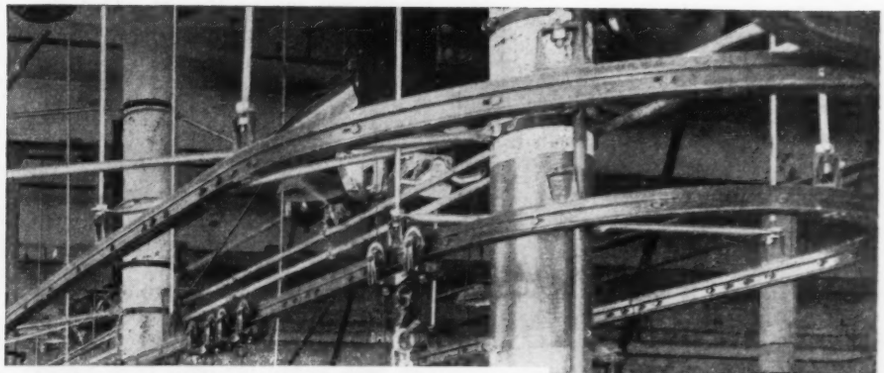
The Fafnir Bearing Company, New Britain, Conn., now offers a complete range of self-aligning bearings, according to an announcement by the company. In the "B" type of bearing the conventional outer ring is made with its outside surface spherical instead of cylindrical. The "S" type permits the conventional cylindrical inner surface of the housing to be retained by providing an extra self-aligning ring with a concave inner surface. The "L" type gives self-alignment entirely from within the outer bearing ring, permitting the housing to be both straight-bored and of minimum diameter. The bearings are available in single row, double row, and wide inner ring type.

Shears and Scissors Catalog

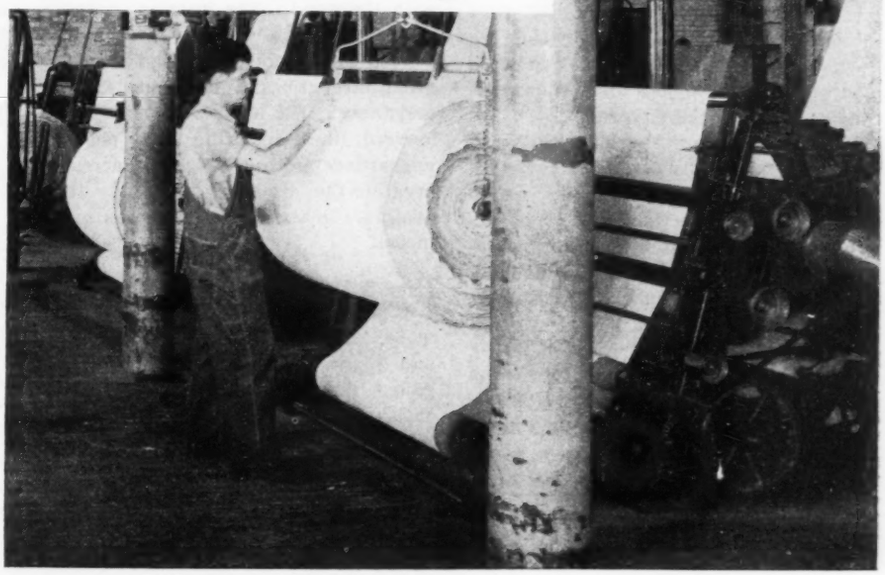
John A. Eberly, Reading, Pa., has published a catalog listing and illustrating a variety of shears, scissors, cloth knives, belt cutters, etc., as manufactured by the company, and which are of interest to the textile mills. Of especial interest is a scissors sharpener with illustration showing its proper use.

"Stackrack" for Storing Doffing Boxes, etc.

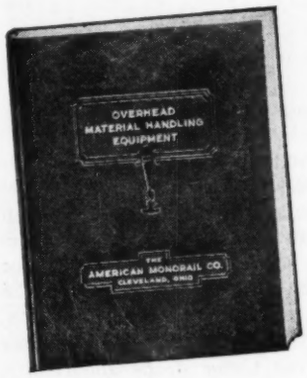
Stackbin Corporation, Providence, R. I., has solved the problem of storing doffing boxes or filled spool trays waiting for collection and transfer, according to the manufacturer, by the use of the *Stackrack*. This is a strongly welded channel and angle steel frame, easily assembled, into which boxes slide like drawers. It is sturdily built so that bolting to the floor is not required. Boxes stored in *Stackracks*, it is pointed out, run no danger of spilling, are easier to handle, and require less space. The new product is made in any size to fit boxes and trays of all weights and shapes.



Only half the handling!



This modern system of overhead handling brings lower costs reduces damage and improves operation wherever installed.



Send for this book

Used as a standard reference in many technical libraries.

When loads travel over a properly designed MonoRail system they reach process machines at the most advantageous height. No excessive lifting or shifting is required. In most cases beams and rolls are merely lowered into position. This alone saves half the handling.

By providing free movement of stock between processes, storage is often eliminated thereby further reducing the amount of handling required. Overhead handling releases floor space for more profitable use and permits narrow alleys between machines.

Stock and machinery are protected when heavy loads are carried overhead. Handling stains on yarn or fabric are kept at a minimum—floors no longer subject to wear.

It will pay you to learn how easily these savings can be made by applying American MonoRail equipment in your mill. Our engineers are located conveniently close to you. They will be glad to offer their assistance without obligation. Write for a copy of the new book describing Overhead Handling and Automatic Cleaning Equipment.

THE AMERICAN MONORAIL CO

13106 Athens Ave., Cleveland, O.

"Cotton Progress in Brazil"

Textile men have recently been greatly interested in the development of cotton-growing in Brazil and other parts of South America. Much up-to-date, accurate and complete information on this subject may be found in a new book, "Cotton Progress in Brazil", prepared by N. S. Pearse, as a report to The International Federation of Master Cotton Spinners' and Manufacturers' Associations, of which he is the secretary. Mr. Pearse, at the direction of the International Cotton Committee, visited the cotton belts of Brazil with a view to observing the progress made in cotton growing since the visits of the three missions sent to that country by the Federation in 1921-23. He spent five weeks in Brazil, investigating the matter thoroughly, and his report is an unusually complete and comprehensive picture of the situation.

The book covers the history of cotton cultivation, discusses the varieties, cultivation methods, climatic conditions, ginning practices, etc., and presents as well a picture of cotton manufacturing in Brazil. It is a well-rounded treatment of all phases of a subject in which much interest has been manifested but concerning which detailed, authoritative information has heretofore been meager.

The English price of the book is 10 shillings, 6 pence. Copies may be secured either through COTTON, or direct from The International Federation of Master Cotton Spinners' and Manufacturers' Associations, Midland Bank House, 26 Cross St., Manchester, 2, England.

Deep Well Pump Catalog

Aurora Pump Company, Aurora, Ill., has prepared a catalog descriptive of its deep well turbine pumps. Illustrations are given and data are available which are of value to the engineer.

Literature by Lydon

Lydon Brothers, 229 Colden St., Jersey City, N. J., have published literature descriptive of their system for twist setting. The yarn is placed in a steam box where it remains for a short period prior to being used. The steam boxes are equipped with automatic controls that may be set for any specified time. Of especial interest to the full-fashioned manufacturer is the introduction of a system of supplying uniformly controlled humidity to the cones while they are being knit on the machine. The Lydon system is said to permit direct knitting in a qualified form in that the cone is conditioned in storage adjacent to the machine prior to use in the knitting machine. It is conditioned in the storage under the same temperature and humidity as that on the machine, and when the cone is placed on the machine, this condition is maintained. The literature illustrates this new system.

New Rotary Roof Ventilator

The Swartwout Company, 18511 Euclid Ave., Cleveland, O., has announced a new rotary roof ventilator for industrial and commercial building application. In basic principle it is the same as the original Swartwout rotary which has been in use for some time, but in detail construction, it offers many improved features such as the stainless steel, fully enclosed, dust-tight, oilless ball bearings on which the head turns with the wind. The interior construction is of stream-lined steel tubing, welded into a one-piece head frame of great strength and minimum friction resistance. The body is designed along modern lines, resulting in a pleasing appearance with a slightly increased area in the discharge opening. It is available in sizes from 12-inches to 72-inches.

Friez & Sons Catalog

Julien P. Friez & Sons, Inc., Baltimore, Md., have made available a new and comprehensive catalog of standard gauges for rain, snow, and water level. The new catalog covers an extensive line of instruments for all phases of research into the hydrologic cycle, as well as for manifold industrial applications. It is illustrated, showing models, views of specific installation, and has specification tables.

Disc-Brake Motors Have Built-In Brakes

The Reliance Electric & Engineering Company, 1088 Ivanhoe Road, Cleveland, O., has a new power unit known as the disc-brake motor, which combines in a single unit the functions of a motor with those of a powerful brake, and which is useful for small cranes, hoists, auxiliary movements on machine tools, and other equipment in which quick, automatic and accurate stopping or holding of a load is necessary. It is stated that with these disc-brake motors it is often possible to connect the drive direct and thus to avoid the need for clutches. These motors can be furnished for both ac and dc current and with specifications to meet any particular case. The brake itself consists of a simple and compact disc-type friction device, mechanically and automatically engaged when the current is shut off, and magnetically disengaged when the current is applied. The brake mechanism operates equally well in any position.

The company also offers a bulletin sheet describing its method of integrally casting end rings, fans, and rotor bars of alternating current squirrel-cage induction motors whereby all possibility of bad contacts or loose connections is eliminated and uniformly nigh performance is assured.

New Pomona Pump. Testing Devices Added to Research Dept.

Pomona Pump Company, Pomona, Cal., has introduced a new synchronous motor job that is computed at 400 hp and at 1000 r.p.m. It delivers 2250 gallons per minute and has a total head of 530 feet.

The company has recently added new testing devices to its research department to make pre-study and final tests of its products. Accurate readings of performance under actual operating conditions are now able to be made.

Pipe Threading Eliminated by Standard Fittings

S. R. Dresser Manufacturing Company, 394 Fisher Ave., Bradford, Pa., points out that the time for cutting pipe to exact lengths, threading, grooving, flaring, or screwing up joints in cramped quarters is no longer necessary, with the standard line of fittings that were recently announced by the company. Nothing but an ordinary wrench, it is explained, is needed to complete a joint in a few moments. After inserting the plain-end pipe into the fitting, which comes completely assembled, it is only necessary to tighten two threaded octagonal follower nuts with a few quick turns of the wrench. As this is done, resilient armored gaskets at each end of the fitting are compressed tightly around the pipe, forming a positive seal.

New Pump Control and Low Water Cut-Off

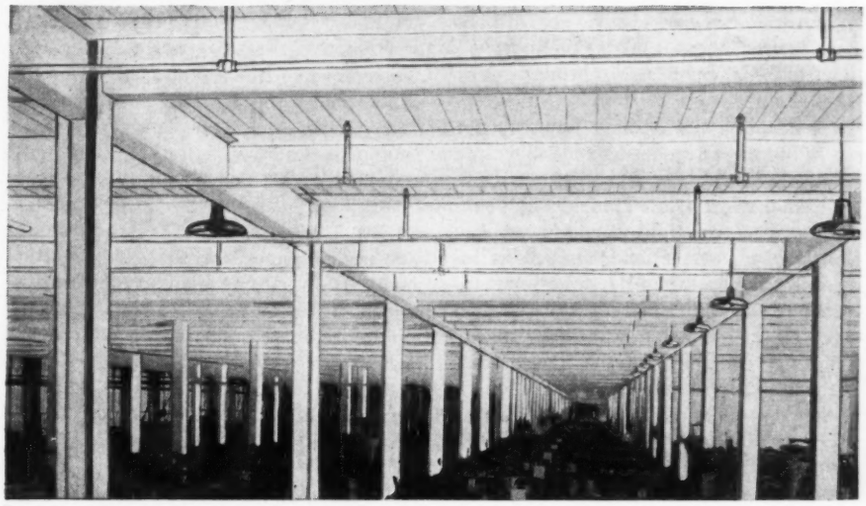
McDonnell & Miller, Wrigley Building, Chicago, Ill., are now manufacturing a high pressure combination pump control and low water cut-off. Its function is to start and stop electric boiler feed pumps in accordance with the boiler water level. If, for any reason, the pump should stop and the water level in the boiler drops abnormally, the cut-off will stop the stoker or oil burner, and at the same time close an alarm circuit.

List Price Book by Link-Belt

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill., has released a new 8-page list price book, No. 1622, on the subject of cast iron pulleys for power transmission, giving pertinent data on solid and split, single and multiple arm machine-molded pulleys, with and without rubber lagging.

DU PONT CHEMISTS DISCLOSE NEW ECONOMIES IN MILL PAINTS

Greater savings now possible with Du Pont System of Paint Protection



PAINTS THAT SPREAD FARTHER, HIDE BETTER, COST LESS, DEVELOPED IN DU PONT LABORATORIES

Through the formulation of finer, whiter pigments and new vehicles Du Pont laboratory technicians have evolved new paints that give you more for your money.

Wherever these remarkable new paints have been tried in the textile industry, they have given unusually economical and satisfactory jobs.

Since these *proved, pre-tested* paints reflect more light over a longer period, they save money in reducing maintenance overhead.

DU PONT chemists, tackling the painting problems of the textile industry, have discovered new revolutionary finishes which bring down painting costs. Years of patient research and pre-testing in Du Pont laboratories and on "paint farms" went into the development of these modern finishes.

Executives who have tried Du Pont mill paints are enthusiastic endorsers of the Du Pont System of Paint Protection. Throughout the industry there are hundreds of mills now spending less money for better paint protection.

Saving money is the daily duty of Du Pont maintenance engineers. By analyzing specific paint problems in your mill, these efficiency experts can tell you the *right* paint to use for the *right* job—the paint that will last the longest, look the best, cost the least in the long run.

Maybe you are not getting your money's worth under your present painting system. A Du Pont representative will be glad to prove right in your own mill how the Du Pont System of Paint Protection cuts down painting overhead.

Simply mail in the coupon below for complete information.

DU PONT
REG. U. S. PAT. OFF.

PAINTS

FOR THE TEXTILE INDUSTRY

E. I. du Pont de Nemours & Co., Inc.
Finishes Division
Wilmington, Delaware

Please see that I get full information regarding ways of saving money in my mill maintenance costs through the Du Pont System of Paint Protection.

Name.....

Address.....

City.....*State*.....

Motosteel Evenaction Lever Motor

Taylor Instrument Companies, Rochester, N. Y., have developed a new product known as the Motosteel Evenaction Lever motor, whose outstanding features include an all-steel welded construction, precision operation characteristics that insure a uniform relation between the air pressure applied to its diaphragm motor and the resulting lever travel throughout its stroke, freedom from hysteresis, power of either up-stroke or down-stroke being increased or decreased by spring adjusting nut, and limit stops for both up-stroke and down-stroke. The base of the motor is drilled for mounting on the floor, wall or ceiling, making possible an infinite number of mounting positions. It may be operated by remote manual control, by an electropneumatic switch, or by a pneumatically operated controller. It is recommended for lever operated valves, butterfly valves, control of electrical equipment, or for the operation of any device by the conversion of pneumatic energy to linear or angular mechanical motion.

Schieren Literature

Charles A. Schieren Company, 30-38 Ferry St., New York City, makers of leather belting, packings, and specialties, has made available literature descriptive of its belting. This company operates its own tannery, thus being able to start with the raw hide and from there make the finished belt. An interesting photomicrograph is shown, taken of a belt on a pulley, the picture being made through a transparent pulley. The soft pliable raised areas of the leather are compressed against the surface of the pulley, forming a tight pulley contact when the belt is under tension.

New Colors by Du Pont

E. I. du Pont de Nemours & Company, Inc., dyestuffs division, Wilmington, Del., has announced three new dyestuffs. Acetamine Violet 2R, yields a very reddish shade of violet on acetate fiber yarn and pieces. It is said to possess good affinity at 160 degrees F. and is rapidly absorbed from the dyebath with economical results. The fastness of this color to dry cleaning, perspiration, dry steaming, washing and cold and salt water recommends it for use on all types of acetate fiber materials. Sulfogene Fast Green YCF may be applied to various types of cotton materials in all stages of manufacture, giving dyeings of good general fastness. Ponsol Brown AG (paste, double paste, and AGS double), is a vat color with good exhausting properties and good level dyeing qualities.

Agent for Breaking Down Starches

Hudson Industrial Company, 27 East 22nd Street, New York City, are the representatives in this country of Prosperin, a scientific starch extender, available in handy tablet form. This product is designated as an agent to break down starch automatically without involving the necessity of a change in existing cooking methods. It is applicable for use with corn, tapioca, potato or sago starch, and is supplied for use on cotton, wool, jute and mixed fibers.

The company states that experience has demonstrated that through the use of this product, the cooking period is reduced, the amount of starch required is cut down, and that the uniform mixture is provided. The action of Prosperin, it is pointed out, is one of penetrating the fibers, and the starch is activated, eliminating inert starch matter.

"Greater Lighting Efficiency"

General Electric Vapor Lamp Company, Hoboken, N. J., has published an illustrated booklet which gives facts and figures about the newly improved horizontal Cooper Hewitt lamps. In the booklet may be found a description of both the 33-inch and the 50-inch lamps, as re-designed for better industrial lighting, particularly for precision work of all kinds. The booklet sets forth improvements of the lamps over former models, such as increased light output per watt, instantaneous starting, horizontal suspension, greater operating stability, the highly efficient reflector, and the new simplified design. Valuable information is given for computing the proper spacing of the lamps to obtain any given illumination level.

Neoprene

E. I. du Pont de Nemours & Company, Inc., Wilmington, Del., has published a booklet descriptive of Neoprene, an engineering material with rubber-like properties, yet one which resists the deteriorating effects of oil, heat, sunlight, chemicals, and oxidation. This presentation considers separately the effects of various types of oils, acids, sunlight, heat, and other forces which result in rapid deterioration of rubber products and indicates the type of service which may be expected with a similar part of Neoprene. Specific applications of Neoprene, including hose, electrical cable, molded parts, extruded material, sheet goods, and gaskets are also described, with data on reasons for the use of Neoprene in these applications. It is said that Neoprene rolls are being used in spinning frames.

Wall Card by Johnson Bronze

Johnson Bronze Company, New Castle, Pa., has released a new wall card covering the complete line of Johnson cast bronze graphited bearings and bushings. The reference chart gives complete information on over 200 sizes of cast bronze graphited bearings with valuable information covering their applications, tolerances, and alloy. The wall card may be hung on the wall and provides quick reference for design engineers and others who frequently must refer to this information.

Booklet on Caustic Soda

Pennsylvania Salt Manufacturing Company, 1000 Widnener Building, Philadelphia, Pa., has made available a 24-page booklet on caustic soda. The properties of caustic soda and its water solutions are given, and the various chemical analyses are noted. Precautions are listed for handling and unloading liquid caustic soda, also other forms of the chemical.

New Products by National Oil

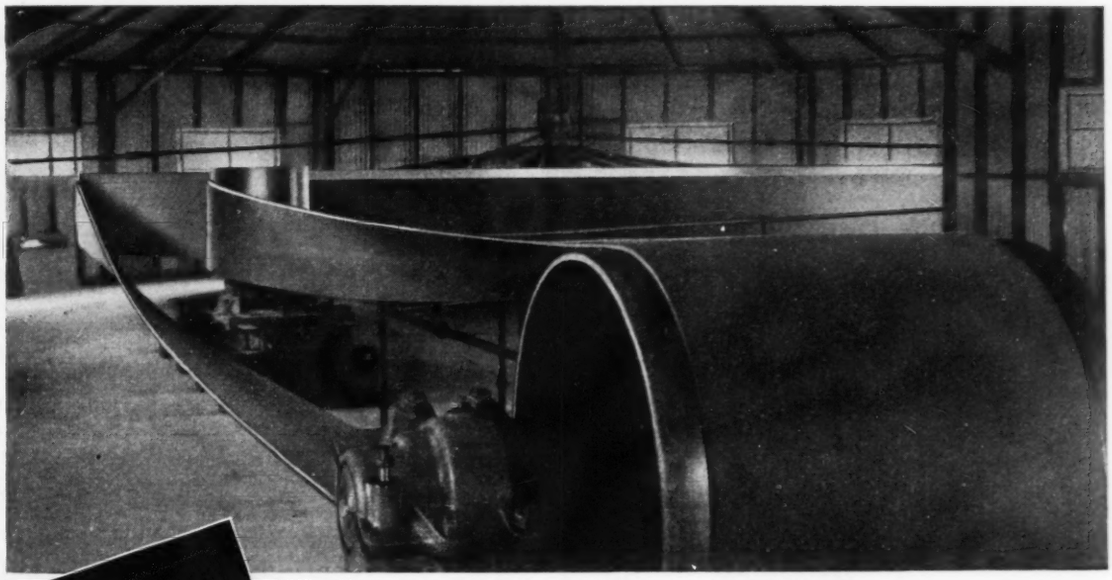
National Oil Products Company, Harrison, N. J., is offering NOPCO C. P., not a blend, but a single oil 100 per cent sopanifiable, as a safe worsted lubricant for making high quality tops. It is said to be easily removed from the stock, substantially reduces fiber breakage, and is claimed to be superior to olive oil. NOPCO copping oil No. 7 is also offered for the conditioning of fancy rayon and acetate yarns. It is said to emulsify instantly in cool water or warm water, is highly stable, reduces static electricity, and is resistant to oxidation and rancidity. It is said to produce excellent softening and lubricating effects on bath acetate and viscose yarns.

New Transfer Remover

Laurel Soap Manufacturing Company, Inc., Philadelphia, Pa., has made available a new transfer remover, Laureltex No. 340, for use on silk hosiery before re-dyeing. It is said that this new product will remove trademarks on silk hosiery quickly and economically, before stripping and redyeing.

First-Aid Kit

Davis Emergency Equipment Company, New York City, has designed a new type of first-aid kit especially for industrial use. The kit containing the supplies is firmly locked and has a dust-proof and water-proof seal. It may be located at various points in the plants, offices, and warehouses where it is needed so that when an accident occurs no time is lost in hunting for it. The kit holds 10 unit cartons of dressings and treatments.



TRANSMISSION BELTS *from* *Giants to Pigmies*

RANGING from the operation of an enormous oil well power down to revolving the brush of a domestic vacuum cleaner, Republic manufactures transmission belting for hundreds of purposes. This striking contrast illustrates the breadth of research by Republic Engineers to meet industry's requirements economically and efficiently.

Republic Belts are designed and built to suit all technical needs of individual applications. Strength, flexibility, resilience, stretch-resistance or other essential properties are rigidly tested. Inch after inch and foot after foot each belt must prove uniform, sound and long lasting.

Republic offers unexcelled facilities for the best solution to your transmission belt problems.

REPUBLIC RUBBER

Division LEE RUBBER AND TIRE CORPORATION
YOUNGSTOWN • OHIO

Manufacturers of HOSE
BELTING • PACKING
MOLDED PRODUCTS

ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR

News Items with a Textile Slant

Ed Kempton Goes with Commercial Credit Company

Ed S. Kempton, for many years executive vice-president, assistant treasurer and general manager of A. B. Carter, Inc., and the affiliated companies, Mill Devices Company, Carter Mills, and Carter Traveler Company, has become associated with the Commercial Credit Company, Inc., Baltimore, Md. Mr. Kempton, who is widely known in southern textile mills, will contact the executives in connection with the financial services of the company.

Mr. Kempton

Taylor Succeeds Doc Harris for Staley in North Carolina

H. F. (Smiley) Taylor, Jr., has been appointed representative for the A. E. Staley Manufacturing Company in the North Carolina-Virginia territory of the company, succeeding John A. (Doc.) Harris, who has been promoted to state division manager of the company in Ohio, with headquarters in Columbus, O.

Mr. Taylor

Mr. Taylor has been connected with the package sales division of the Staley company for several years, and in succeeding Mr. Harris in the bulk division will now devote his efforts to the textile trade largely. Mr. Taylor is a graduate of the N. C. State Textile School.

Fowler of New Departure Passes

George W. Fowler, Chicago office manager of the New Departure Division of General Motors Corporation, passed away August 9 following an extended illness. Mr. Fowler would have completed 20 years with the company next December, having founded its sales and engineering offices in Chicago. He was known to be a wonderful trainer of the men who worked under him.

Yake a Director of Royce

E. E. Yake, who joined the Royce Chemical Company January 1, 1937, has been elected a director of the company. This took place at the annual meeting of the board of directors held at Carlton Hill, N. J., the home of the company. Up until this time there has been no change in the board; the company was organized almost 10 years ago.

Atlas Electric Expands

Atlas Electric Devices Company, Chicago, Ill., manufacturer of the fade-ometer, launder-ometer, and weather-ometer, has added 12,000 square feet to its plant and has installed additional equipment. Definite product guarantees and instructions for use are now being furnished to consumers by an increasing number of manufacturers, and this growing trend has been made possible by the use of such products as this company makes.

Myers Now with Onyx Oil

Charles Clifton Myers, 2131 Charlotte Drive, Charlotte, N. C., formerly with the Carolina Aniline & Extract Company, Charlotte, N. C., has joined the sales staff of the Onyx Oil & Chemical Company, Jersey City, N. J., and is covering the Carolinas.

Mr. Myers

Republic Announces New Distributors

Republic Steel Corporation, Cleveland, O., has announced the appointment of Momsen-Dunnegan-Ryan Company, El Paso, Tex., as distributor for Enduro stainless steel. Odell Hardware Company, Greensboro, N. C., has been appointed distributor of Toncan iron sheets.

G. R. Bott Passes

George Robert Bott, chief engineer and a director of Norma-Hoffman Bearings Corporation, Stamford, Conn., succumbed to an attack of the heart on August 14, at his summer home in New Canaan, Conn. He was 58 years old at the time of his death and had been with the company for about 25 years.

"Cotton Utilized in Combed Marquisettes"

United States Department of Agriculture, Bureau of Agricultural Economics, Washington, D. C., has made available an 11-page report of a study of cotton as used in the manufacture of combed marquisettes. The study covers the uses of marquisettes, consumer costs quality and quantity of cotton used, and an interesting summary of all facts. *Cotton Utilized in Combed Marquisettes* also carries a table showing typical grades and staple lengths of cotton used for spinning specified yarns for weaving this fabric.

Callaway Mills Add Three General Superintendents

Callaway Mills, with 11 plants in LaGrange, Manchester, Milstead and Hogansville, Ga., and Roanoke, Ala., last month announced the grouping of these plants into three major divisions, and the promotion of three executives to become general superintendents in charge of these groups.

W. P. Dunson, formerly superintendent of the Manchester plant, has been moved to LaGrange to act as general superintendent of the Hillside, Manchester, Valway and Truline plants. J. H. Daughdrill, formerly superintendent of Calumet plant, succeeds Mr. Dunson at Manchester, and W. B. Hill, formerly assistant superintendent at Calumet, succeeds Mr. Daughdrill at Calumet.

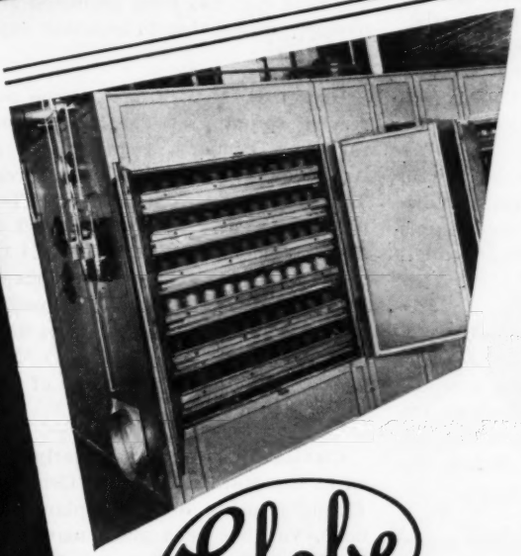
T. B. Kersey, formerly superintendent of Oakleaf and Unity Spinning plants, is now general superintendent of the group comprising these two mills and the Unity Cotton and Calumet plants. S. A. T. Newsom, formerly assistant superintendent, succeeds Mr. Kersey at Oakleaf and Unity Spinning.

B. W. Robinson, formerly superintendent, Elm City plant, is now general superintendent of Elm City, Hogansville, and Milstead plants. C. E. Rich, formerly general overseer, succeeds Mr. Robinson at Elm City.

M. M. Trotter continues to serve as vice-president in charge of manufacturing. Perrin N. Collier is vice-president and staff manager.

T. L. Arnett, formerly technical superintendent on the general staff of Callaway Mills, has been made superintendent of the Hillside plant, succeeding Frank L. Asbury, Jr., who resigned. A. U. Preister, Jr., who recently was made overseer of weaving at Hillside, succeeding R. A. Burt, who is now overseer of weaving at Opelika (Ala.) Mills, has been made technical superintendent on the general staff of Callaway Mills, succeeding Mr. Arnett. At Hillside, B. F. Pennington has been made assistant overseer of weaving, and J. B. Walker assistant overseer of slashing, drawing-in and tying-in.

PROCTOR DRYERS



PACKAGES— PROPERLY DRIED AND CONDITIONED

Pick up a package of Globe dyed yarn as it comes from the dryer and notice its cool, soft feel. ¶ Compare this with the dry, stiff condition of yarn that you sometimes encounter. ¶ The difference is due to the fact that the drying of Globe dyed yarns has been controlled as to its moisture content. Your yarn is not over-dried nor is it too moist either. ¶ This is just another example of how, in every step of manufacturing, the Globe Dye Works employs modern scientific methods to insure careful workmanship and satisfactory yarn for weaving and knitting. ¶ When you come to placing your next order for package, skein, or warp dyeing, remember—

YOU CAN RELY ON GLOBE

Dyers, bleachers and mercerizers of cotton skein yarns and warps. Package dyeing on tubes. Dyers of rayon, spun rayon, linen and novelty yarns.

Globe DYE WORKS CO.

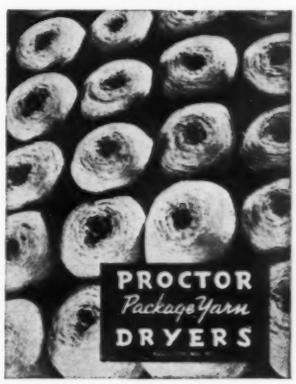
FRANKFORD, PHILADELPHIA, PA.

The above advertisement recently appeared in textile publications.

The Globe Dye Works of Philadelphia has one of the best equipped dye houses in the country and lives up to every letter of its slogan . . . "You Can Rely on Globe." With pride we point to the fact that Globe relies on Proctor Dryers exclusively to insure "packages—properly dried and conditioned."

An ever-increasing number of prominent dyers and finishers depend on Proctor for drying machines to meet all kinds of requirements.

Whatever your textile drying problems may be, Proctor Dryers will help you find a satisfactory solution. There's a new Bulletin No. 40 on the new Proctor Package Yarn Dryers, that we'll gladly send you.



PROCTOR & SCHWARTZ • INC • PHILADELPHIA

PERSONAL NOTES
about Men You Know

C. L. JOLLY has been transferred from the superintendency of the Riverdale Mill, Enoree, S. C., to become superintendent of the Inman (S. C.) Mills, succeeding NEWTON G. HARDIE, now assistant general superintendent of the Gossett Mills, Anderson, S. C. LEE RAMEY has been promoted to superintendent at Riverdale succeeding Mr. Jolly.

J. L. BRANNAN, formerly overseer of carding, spinning, and twisting, Mooresville (N. C.) Cotton Mills, Plants No. 2 and 3, has become general overseer of carding and spinning at the Durham (N. C.) Cotton Manufacturing Company.

ALBERT M. GUILLET, JR., who recently completed the textile course at N. C. State College, Raleigh, N. C., is now associated with his father at the Dixie Spindle & Flyer Company, Inc., Charlotte, N. C.

W. ROLAND HOLT, who has been overseer of carding and spinning at the Cherry Cotton Mills, Florence, Ala., is now superintendent of the Winville Corporation, Winder, Ga.

C. RHYMER, formerly overseer of spinning, Riverdale Mills, Enoree, S. C., has joined the sales force of Dary Ring Traveler Company, of Taunton, Mass., and is traveling with Greenville, S. C., as headquarters.

CASH M. STANLEY, JR., textile graduate of the Alabama Polytechnic Institute, Auburn, Ala., who has been in the weaving and cost department of Avondale Mills, Sylacauga, Ala., has been elected to the faculty of the textile engineering school of the Texas Technological College, Lubbock, Tex., where he will head the department of weaving and design.

W. E. FLOYD has been made superintendent of the Goodyear Decatur (Ala.) Mills, succeeding C. W. YOUNG, resigned.

HERBERT A. WEILLER, who for the past two years has been operating the California Hand-Print Company, has become associated with the California Mills Company, Oakland, Cal., where he will assist in establishing a new hand-print department. In this connection, the mill will hand-print only its own products.

BOYCE L. ESTES, formerly superintendent of Jennings Cotton Mills, Lumberton, N. C., has become superintendent of Chadwick-Hoskins Mill No. 3, Charlotte, N. C.

EARLE E. RIDDLE, Clemson College textile graduate, who has been assistant superintendent of the Laurens (S. C.) Cotton Mills, has become superintendent of the Wennonah Cotton Mill Company, Lexington, N. C.

L. N. KINCAID, who has been with the National Weaving Company, Lowell, N. C., has been made master mechanic at the Thrift Mill, The Kendall Company, Paw Creek, N. C.

ROBERT BUNN, formerly superintendent of the Harriet Cotton Mills No. 3, South Henderson, N. C., has accepted the position as superintendent of the Henderson Cotton Mills, North Henderson, N. C., succeeding his father, the late J. HARRY BUNN.

F. L. WILSON has been made superintendent of Cannon Mills Company, Plant No. 11, Rockwell, N. C., succeeding T. A. SHERRILL.

J. A. TALBERT, formerly designer of the Cliffside (N. C.) Mills, has become superintendent of this plant, succeeding E. T. COMBS, who is now general superintendent of the California Cotton Mills Company, Oakland, Cal., and who succeeded W. R. BARNETTE, resigned.

C. W. BYRD has been elected president of the Davidson (N. C.) Cotton Mills, Inc., succeeding T. H. WEBB, who resigned to devote his time to The Geigy Company, manufacturers of dyes, with offices in New York City. W. W. FLOWE, Concord, N. C., succeeds Mr. Webb on the board of directors. C. W. BYRD retains his position as treasurer of the company, and C. A. POTTS, Davidson, N. C., is secretary.

E. A. JOHNSTON has resigned his position as night superintendent of the Aponaug Manufacturing Company, Yazoo City, Miss., and accepted the position of overseer of carding and spinning at The Selma Manufacturing Company, Montgomery, Ala., which is the plant of the former Cloverdale Mill, which has been purchased and reopened by J. F. AMES, former proprietor of the Selma Manufacturing Company of Birmingham.

P. W. POLLARD, Greenville, S. C., has been made superintendent of the new Birmingham (Ala.) Textile Company. GEORGE LEE, formerly overseer of carding at the Lane Cotton Mills, New Orleans, La., holds the same position at this company, and F. E. MAY, Meridian, Miss., is master mechanic.

H. C. ESTES, Jefferson Mills No. 2, Royston, Ga., has been promoted from overseer of weaving to assistant superintendent.

GEORGE E. ARCHER has become overseer of spinning at The Sibley Manufacturing Company, Augusta, Ga. Mr. Archer, a graduate of the A. French Textile School, Georgia School of Technology, Atlanta, was some years ago superintendent of Crawford (Ga.) Cotton Mills, now a branch of Jefferson (Ga.) Mills. At Sibley he succeeds C. O. SMITH, who is now in the spinning department of Opelika (Ala.) Mills, where C. C. PAGE is overseer of carding and spinning.

CHARLES P. WILSON, formerly located at the Marshall Field & Company's (manufacturing division) plant, Roanoke, Va., has been made manager of the Lumb Knitting Company, Pawtucket, R. I., another of the Field plants, succeeding H. W. WHITCOMB, who, as noted in the August issue, has assumed the position of director of purchases for the entire Marshall Field & Company plants, and has his headquarters in Spray, N. C.

J. B. CORNWELL has been made superintendent of Mill No. 3, the rayon plant, of the Republic Cotton Mills, Great Falls, S. C., succeeding M. D HANEY, who retired after a number of years with the company.

(For report of recent personnel changes at Callaway Mills, see page 96.)

Obituary Items

W. W. CORIELL, for many years identified with the textile industry, being at one time a president of the Nashawena Mills and a director of the Calhoun Mills, passed away the latter part of July. Mr. Coriell had retired from active business last year.

B. E. BYRD, 76, formerly of Gastonia, N. C., passed away at his home in Fort Lauderdale, Fla. Mr. Byrd was associated for 25 years with Mill Devices Company in Gastonia, and was the inventor of the Boyce weaver's knotter.

The BARBER-COLMAN SYSTEM of SPOOLING and WARPING

ONE OF THE EARLIEST installations of the Barber-Colman System of Spooling and Warping, made in 1917, is still in operation on a two-shift basis. . . .

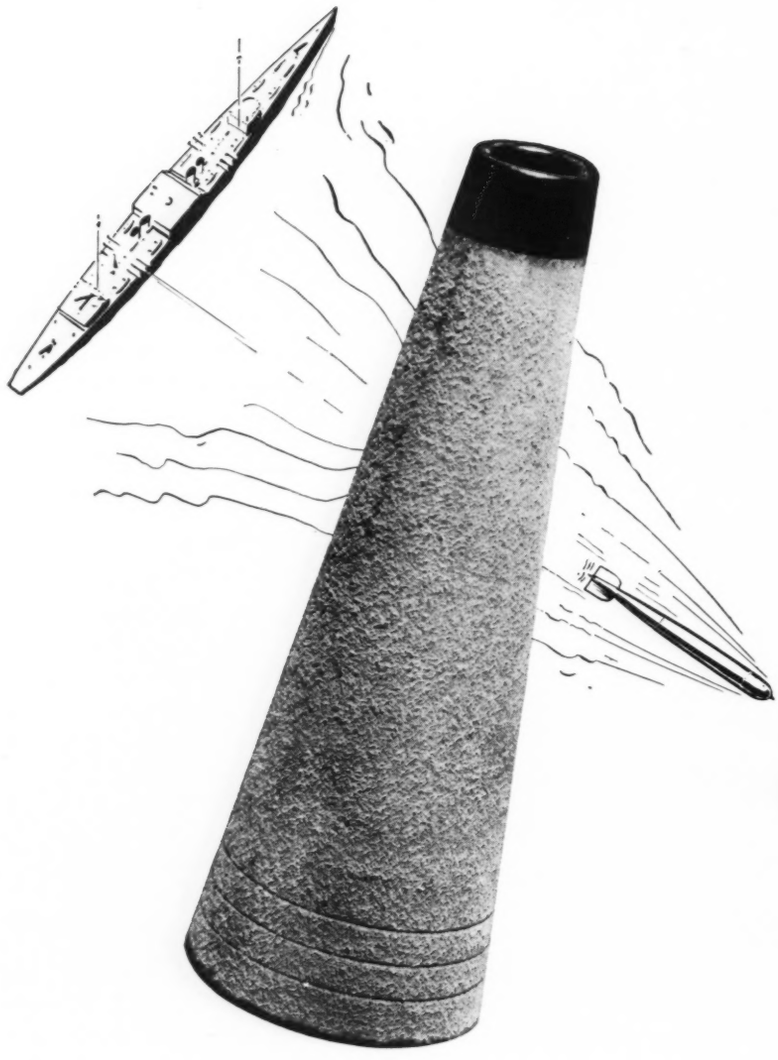
During the

20 YEARS

since that installation, every year has seen a substantial increase in the number of automatic spoolers in use. Leading cotton manufacturers have recognized and taken advantage of the many benefits offered by the Barber-Colman System of Spooling and Warping. At present, approximately 60% of all the cotton looms in the South . . . the leading cotton manufacturing section of the country . . . are using warps prepared on Barber-Colman machines. Barber-Colman's unique record of more than 20 years experience in this specialized field is assurance to every new purchaser that these machines will deliver economical, dependable service and performance.

LOWER SPOOLING AND WARPING COSTS • AUTOMATIC OPERATIONS • HIGH SPEEDS • LOWER TENSIONS
ADDED IMPROVEMENTS • LOWER MAINTENANCE COST • GREATER ACCURACY • DURABILITY • EFFICIENCY

1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937



FOR ONE-TIME USE, YET.....

PRECISION MADE

Like the precision-made torpedo, SONOCO Cones are also precision-made and . . . . used only one time. Yet SONOCO Cones cost but the fraction of a cent.

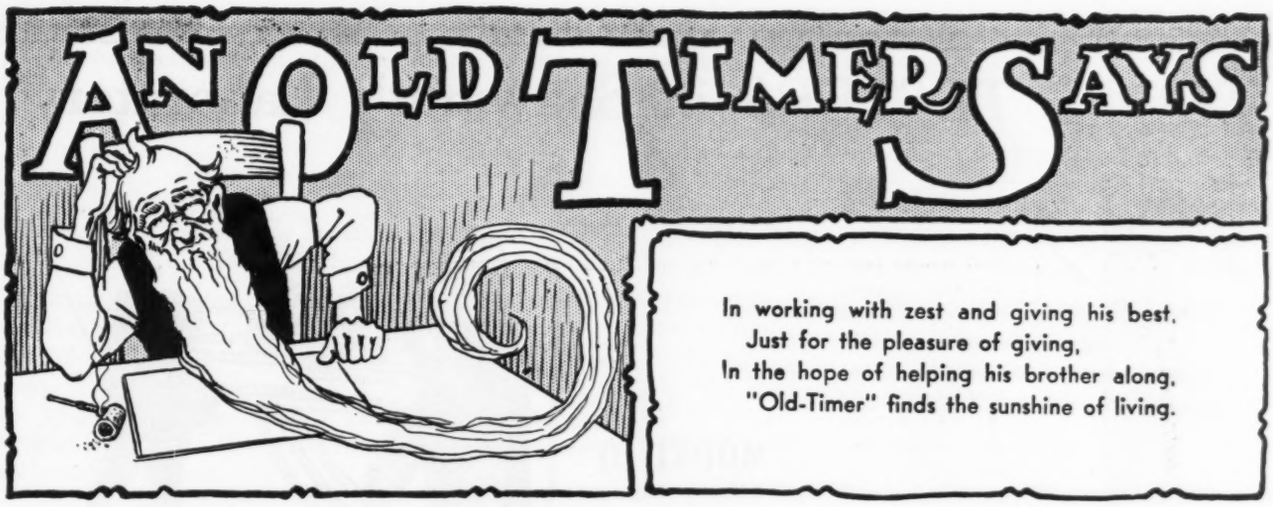
The technical experience and engineering skill required to manufacture to *precision,* and yet both *cheaply* and in great *quantities,* can only come from long and persistent desire to render the highest degree of service.

That such dependable precision in SONOCO Paper Carriers is *taken for granted* by the Textile Industry, is a tribute that makes our efforts worth-while.

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Secret of Taking a Vacation

(Note: OLD-TIMER is taking a vacation this month and he told us just to run a picture of him sitting on the creek bank with a fishing pole in his hands, but who should come along but JIM. Good old JIM, OLD-TIMER's friend of long standing. He is pinch-hitting for OLD-TIMER, without OLD-TIMER's knowledge. Won't he be surprised to read this! The first part of this story is a conversation that JIM overheard, the last part is what took place after OLD-TIMER had gone. As this is written in conversational style, please note that the part written in *italics* belongs to OLD-TIMER and that written in regular type belongs to the others. In the second part of the article the *italics* belong to the other characters and the regular type belongs to JIM.—The Editors.)

How-de-do, MR. BLACK *and* MR. FERGUSON, *and you, too,* JACKSON!

Hello! OLD-TIMER! I thought Black and I saw you here two weeks ago; don't you ever work any?

Well, FERGUSON, *if I should tell you about how I worked when I was a young man like you, you not only would not believe it, but you would say I was all kinds of a fool, and I'll admit that I did act foolish in some instances, working when I was really sick and with the doctor trying to make me go to bed. That, I'll admit, is not good judgment and it is not necessary, but I had never been out a day and I sure wanted to hold that record. On the other hand, I still believe that the average man of today doesn't work hard enough to get ahead of his competitors; he seems to get the idea that he is just smarter than the other fellow and that he can just drift along with the crowd, and his employer, and the public in general, will somehow find out he has more brains than anyone else and that all of the employers in the country will be falling all over themselves to offer him larger salaries, a job with more conveniences, a great big new desk out in the big office, a stenographer to do all the work, etc., etc., etc.*

You know, fellows, "an idea is as good as it works", and, although I may not have had so many brilliant ideas about textile manufacturing, confound if I didn't make those "little" ideas work harder than a half dozen of the "big" ideas my brother overseers and superintendents had and just drifted along waiting for their superior brains to make them a fortune.

Here, OLD-TIMER, you are trying to dodge my question; JACKSON and I saw you and JIM here at the beach almost a month ago. What I am trying to find out is just how much vacation you two old-timers have, anyway.

Well, you see, JACKSON, JIM *here, he just comes down Saturdays to be with me awhile; he's back on the job Monday morning.*

Yes, I know, but I haven't seen you until this summer, for about a year; where in heck have you been all this time?

Oh well, I was in Florida last winter, then I went up to Hot Springs, Arkansas, about the first of March and came on here to the beach about the first of June.

That's just what BLACK, FERGUSON and I want to know, OLD-TIMER. How in the dickens do you have so much vacation and then all the time rub it into us fellows about the way we work; looks to me like you have it pretty soft. Don't you ever work any?

Yes, and no, JACKSON. *You see, I did so much more work in the same length of time, than any of you smart guys ever have or ever will do, that I can afford to "coast" a little now;* (Old-Timer chuckles to himself) *you know, like you do sometimes while driving your car, when you come to a long pretty downgrade, and, realizing that you have been driving your engine pretty hard, you throw out the gear, let your engine slow down to idling and your automobile goes coasting along at 50 or 60 miles per hour. You are making about the same speed, but the vital part of your auto, the engine, is getting a little rest.*

Oh yeah, that's pretty nice theorizing, OLD-TIMER, but I have always thought that it costs money for a fellow to hang around all summer, let alone all winter, like you have been doing.

Guess you are right there too, JACKSON, *and if you fellows are here next week-end maybe we can all get together and see if we can unpuzzle the puzzle and find out how a man can have a nice long vacation, but it's dinner time up at my place now and guess I'll have to be going. So long,* BLACK; *so long,* FERGUSON; *it's*

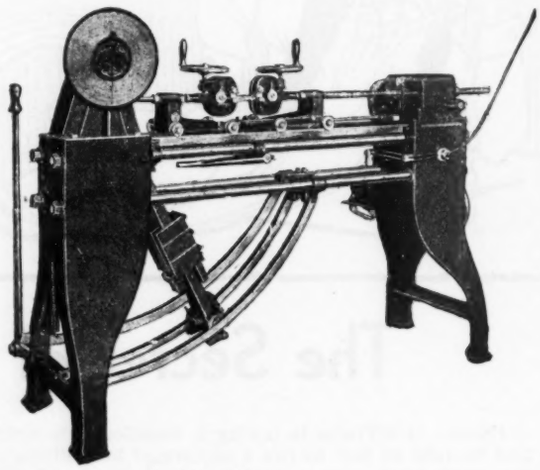
SCOTT TESTERS in Shawmut's Laboratory

MODEL J-2

● Standard vertical tensile tester for yarn, twine and cloth. Automatically records autographically the stress - strain curve of the test.

MODEL Q

● Heavy capacity tensile tester for ducks, large twines, etc. May be furnished with autographic recorder.



"Ask any Important Manufacturer of Textiles"

HENRY L. SCOTT CO., Providence, R. I.

Southern Representatives

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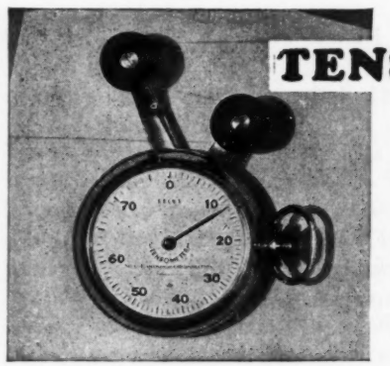

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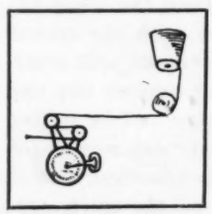
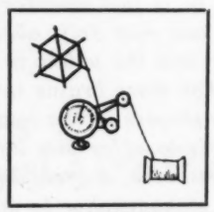
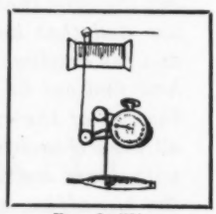


For Warping



For Winding



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ITS A TRADE MARK SIPP EASTWOOD

been good to see you boys, and JACKSON, *I hope you will get back on the job next week with the determination to do more on that job of yours than your employers ever thought it was possible to do. Well, I'll be seeing you.*

From this point on the conversation is between OLD-TIMER's lifelong friend, JIM, and the other fellows. JIM's conversation is written in regular type and the other man's in *italics.*

Say, JIM, *how long have you known* OLD-TIMER?

That's hardly a fair question, BLACK, but anyway, I've known him since he ran his first section in the weave room, and he has not only been my inspiration for what little success I have had as a mill man, but he has been about the best friend a country boy like me could ever have.

Then you know something about whether all this "razzing" he's all the time throwing at us fellows about working, studying and saving money, etc., is a lot of boloney or not.

I'll say I do!

Come on, tell us about how in the dickens he can hang around the beaches all summer and then hike out for Florida in the winter; did his old man leave him a bunch of dough, or something?

Not on your tin-type, fellows; he and I hit the mill about the same time and happened to get board at the same place, from a MRS. ATKINS. (One of her sons got to be a pretty good cotton mill superintendent. OLD-TIMER fixed up a book of mill calculations for him while he was running a section.) The first thing that caused me to notice this young chap, who years afterward was to become OLD-TIMER, was seeing him wash out his shirt every night.

Wash out his shirt! Ha! Ha! So he was a washerwoman, too, was he? Well, that's one more thing we know about him.

"Old-Timer" Washed His Own Shirts

Yeah, he had three black shirts and he washed every night the one he wore that day; in fact, he would have been a sight if he hadn't had a clean shirt because the sweat made white streaks all over that black shirt. He also had two pairs of jeans trousers. You know we did not have overalls in those days and most all the section men wore an apron made out of bed ticking. Well, he'd wash his apron in the mill sink after stopping time Saturday. It may seem a little funny, but OLD-TIMER washing out his own clothes is the first thing that caused me to notice him; and, all the boys would guy him about staying in the mill Saturday afternoons after the mill stopped at 4 o'clock, and then when we found out where he went every night after supper we sure did razz him; we saw him bring a lantern home one Saturday night and we all asked him if he was going to take up 'possum hunting, or, maybe it was snipe hunting, or something. So we watched him, and, darned if he wasn't going back to the mill every night after supper. He used that lantern to see how to work on looms. If he had a warp out at stopping time you can imagine that weaver's surprise to come in next morning and find a new warp on his loom with all the ends tied in and ready to start up the minute the power came on, and, incidentally, the power came on at 5:30 A. M. in those days.

Well, we kidded him about not being able to run a section without working all day and most of the night, but when the overseer offered a premium of $2.00 per month for the highest production and least supplies, OLD-TIMER never missed getting that premium, with the exception of one month; he really won it that month, but Mark Jenkins, the second hand, made a mistake in figuring it up and the overseer did not find it out until about three months afterward, and then he gave OLD-TIMER the $2.00. Anyway, we fellows got to where it wasn't so much fun to kid him about running a section, because, he not only beat us all on production, but darned if he didn't run his section with the supplies we threw away; he could make a shuttle run longer than any man I ever saw; his hold-up straps—they did not give out slab leather in those days like they do now—bumpers, etc., were all made out of leather that he would find, somehow. He never did get any from the supply room. I've seen him pick up old shoes and cut strips of leather from them; he would go to the stores and ask for the boxes in which bird shot were shipped and take the screws out of the boxes to use on his section.

When he started a night school, however, was when I really got acquainted with the fellow. He charged us ten cents per night to teach us common arithmetic and mill calculations. He was so much younger than the rest of us that some of the boys were ashamed to go to school to him, but after awhile they would drop in. Then this same man, ATKINS, I told you about, who was the boarding mistress' son, asked OLD-TIMER to make him out a book of mill calculations; that started him in the book business, so to speak. He took a common single-entry ledger, which cost 30 cents at that time, and he would write down rules and actual examples of how to get loom production, how to figure percentage of production, how to find the reed and harness to make a certain style of goods, how to figure spinning frame production, speeder production, etc. Mind you, he would do all this with a pen, and he could finish one in two Sundays by working all day. He charged us $5.00 per book. Gosh! he soon had so many orders that he hired one of his weavers, JIM ADAMS, who could write a good hand, and some others whose names I do not know, to copy the books for him; he paid them $2.00 each for copying. With night school, and his books, he was soon making two or three times as much as he was getting for running a section; $1.40 per day was "tops", then.

Yeah, JIM, *I begin to see how* OLD-TIMER *can now hang around the beach for a longer vacation than we can.*

And, BLACK, you interrupted before I told you the most important part.

And what's that, JIM?

It is this, and, as OLD-TIMER has often remarked to me, rather hard to understand: There are worlds of really smart fellows, men who can make money

(Continued on page 114.)

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Answers "Wash" on Research Department

EDITOR COTTON:

I have been a reader of COTTON for many years and enjoy, especially, the "HOW OTHER MEN MANAGE" department; I have profited by reading this department, as well.

One could not have read this section of the magazine as long as I have without having become acquainted with "WASH (R. I.)." Many of the articles are out of my line—he seems to make a specialty of carding—while I do not claim to know a great deal about this important department of the mill. "WASH" seems to always be in a controversy with someone, and sometimes I wonder if he does not like to get up an argument, lots of times, just to get other contributors to bring out all of the points of an issue, so that some good may come of it, rather than just for the sake of an argument, as some readers seem to infer. In other words, I have him pictured as a practical man, of the old school, who is willing to accept new ideas *only* after he is convinced by hard facts, rather than by theory, that the new ways are better.

However, on page 95 of the July issue of COTTON, "WASH" puts out his chin, so to speak, in his article, "Does It Pay to Have a Research Department?" I am sure he expected somebody to hit at him—and in doing so, naturally, I will not be surprised if he hits back.

Our mill does not have a research department in the sense, perhaps, that he is talking about. We do have, however, a laboratory where a certain amount of research work is done. And I am of the opinion that without research little progress will be made. It is my observation, in this connection, that the regular supervisory staff, the overseers, second hands and section men will have little time to do research work even if they are qualified to do so. Suppose, for example, that it is necessary to check all of the front roll speeds in a large spinning room; you would be almost obliged to get an extra man to do this for you. Wouldn't a research department come in fine here?

Again, ask a weave room overseer how his room is running, and the chances are that he really does not know. He has a general idea; he may even know his cost for labor, supplies, and so on, but does he know what looms are poor producers? Does he know whether his loom speeds are all up to standard? Does he know his loom stoppage and the reasons for the stops? A good research department, with a practical personnel, could supply these answers for him.

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Pick up a piece of clotn. It looks good, but can you tell just by looking at it whether the breaking strength is within the tolerances allowed? Can you tell whether the picks per inch are correct? Can you tell, just by looking at it, whether the yarn sizes correctly, or if the right twist has been put in the yarn? No, you cannot tell about these things until the cloth has been analyzed and tested.

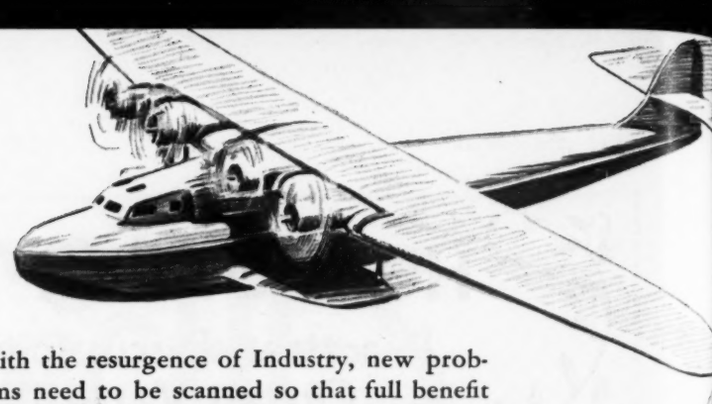
Let us consider this statement, made by "WASH" in his article: "No reader of this department will dispute that the number of blows per inch in the picker makes a vast difference in the breaking strength of the yarn, and that the draft between the drawing rolls and the calender rolls on the drawing frames will do the same . . . Are these factors considered by the researchers?" "No," he says.

I say that they are, and that the research department, or some man acting in that capacity, alone has the time to find out, from *repeated tests*, just *how many* blows per inch in the picker gives the best breaking strength, or just *what* draft between the drawing rolls and the calender rolls on the drawing frames will give the best results. I will grant that a good carder will know that these things have considerable bearing on the final outcome of the product made by the mill, but neither he, nor his assistants, have the time to run the tests necessary to determine which of the settings will give the best results.

Take the matter of speeds of the various machines and you will find that few mills really know whether they are getting the maximum speeds possible, even with the equipment that they have. Most fixers will put off taking up a belt as long as possible, resulting, frequently, in lost production. Checking up on machine speeds should be a regular function of the research department.

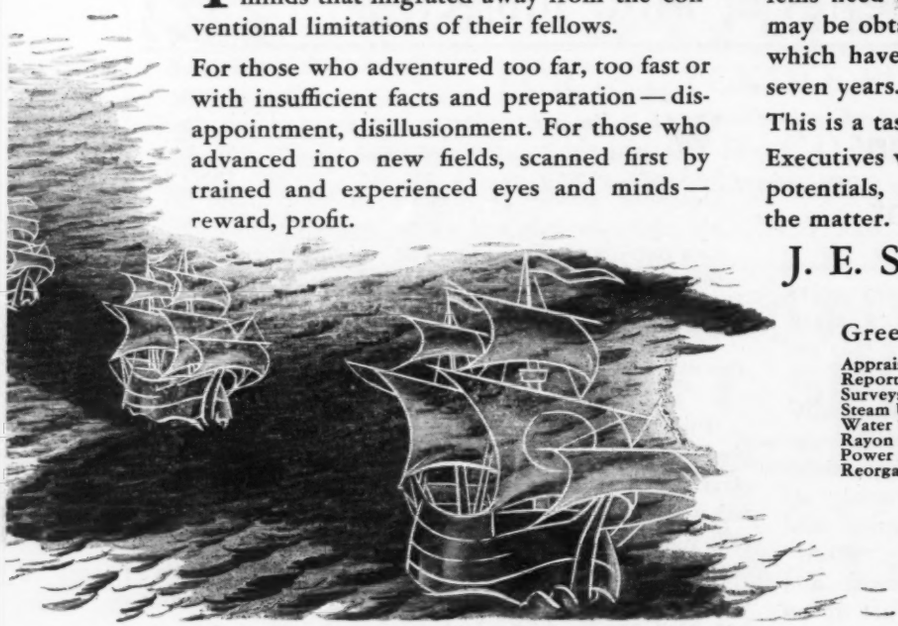
I do not wish to take up too much space with this argument, but I believe that it can be readily demonstrated, even if I have not succeeded in doing so, that it *does pay* to have a research department. Of course I think that the men who make up the research department should be men of practical experience, but they should have a certain amount of technical train-

MIGRATIONS of THINKING



THE progress of man has derived from minds that migrated away from the conventional limitations of their fellows.

For those who adventured too far, too fast or with insufficient facts and preparation — disappointment, disillusionment. For those who advanced into new fields, scanned first by trained and experienced eyes and minds — reward, profit.



With the resurgence of Industry, new problems need to be scanned so that full benefit may be obtained from migrations in thinking which have been going on during the past seven years.

This is a task for the Engineer.

Executives who are interested in new profit potentials, may find it of value to discuss the matter.

J. E. SIRRINE & COMPANY

Engineers

Greenville South Carolina

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Reports	Tobacco Factories
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Reorganizations	

ing as well. They should be men who can be depended upon to do more than just follow a pattern laid down by someone else, but should be capable of doing research work, or pioneer work, in the truest sense.

CONTRIBUTOR No. 4022

Method of Marking Roving

THE following letter was received by COTTON from a mill man: "I am running yarns for the knitting trade and the market will not allow a chalk mark to be put in the roving in the manufacture of these yarns. Without using chalk as a marker, I am unable to place the responsibility for singling and doubling. Please request someone to give us his experience with marking the roving without chalking it."

This letter, without revealing the name of the inquirer, was passed on to a friend of COTTON who answered:

"Every mill, I think, has had the problem of identifying the roving, and where knitters have color stains in their fabric, *this is not always due to chalk.* We have had knitters return fabrics from time to time showing color stains which they assumed to be chalk, but microscopic examinations and chemical tests revealed that the trouble most of the time was not due to chalk.

"We cater to a very critical knitting trade, and use chalk for marking roving. We have not had a complaint in 5 years on color stains that we can attribute to chalk marking. In the majority of instances, these small color stains are due to a single fiber of burlap colored by indelible stenciling or to pieces of colored cloth in the bales of cotton, which get torn into shreds on the pickers and cards, and some of these threads go on through the spinning. We are very careful to go over our bales as they are opened up and remove all burlap fibers, as well as fibers of cotton which were colored when the bale was stenciled.

"We have to be sure that the chalk which we use for the purpose of marking roving is washable. A number of washable crayons offered to textile trade today are not washable. The concern from whom we purchase the chalk which we are using now and which we have been using for a number of years, and will not change for any reason, offers about 15 colors. 3 or 4 of these colors that this company has will stain but we have determined which these are, and we do not use them. The chalk mark on the roving should be small and on the 3 or 4 layers of roving next to the bobbin. A large heavy mark is unnecessary and is more likely to cause trouble. Chalk should be kept in a small box or holder and not on the machines where it will pick up oil. Oily chalk stains will not always wash or bleach out.

"The use of chalk for marking roving is the most satisfactory way we know of identifying singlings, doublings, and other defects made by roving frame operatives. To eliminate chalk marking, the roving when doffed from the roving frames would have to

have a tag with each box, showing which operative made the roving, which should be laid up on certain spinning frames allotted to each roving frame operative. With roving from any speeder always being put in the same spinning frames, any roving with singlings or doublings taken from these particular frames could, of course, be traced to the operative supplying these frames. As the bobbins are taken from the spinning frames, a sheet of paper showing the frame or operative number could be put inside the bobbin, or a tag of some kind used.

"I think we have all at times considered eliminating roving marking with chalk, but I do not know of any mill using a different system."

CONTRIBUTOR No. 6686

Sidelights on Belt Question

EDITOR COTTON:

On page 115 of the March, 1937, issue of COTTON, "CONTRIBUTOR No. 6615" hauls out a question that has been batted back and forth for probably a century and it is not settled yet. That is, which side of a leather belt should be run next to the pulley, the flesh or grain side?

A miller in a large flour mill once told me that the Lord grew the hide with the proper side next to the animal and he would continue to run that side next to the pulley. There is about as much logic in that as the old darky who contended that "God put boll weevils here and I ain't goin' to kill 'em."

It is said that in Europe the general practice is to run the grain or hair side on the outside, with the flesh side next to the pulley, the supposition being that it looks better, but presents no other practical answer. Several years ago some real tests were made with the idea of establishing the fact definitely as to which side of a single leather belt had the higher coefficient of friction, but the tests, which were made with new leather, showed such close coefficients that nothing was decided. However, the personal opinion or prejudice that entered into the question caused the statement to be made that with new leather the coefficient of friction was practically the same on both sides of the belt, but that in time the flesh side would loose some of its adhesive qualities while the grain side would increase in pulling power as the belt became older in service.

Our Demands to the Manufacturer

We all know that an old belt that has become well flexed, after the soft suede finish of the hair side next to the pulley has become established, pulls far better than a new, well polished belt. That is explained by the fact that we demand certain appearance in the belting that we buy.

I am not qualified to dig very deeply into the technicalities as to just what happens in the process of tanning and manipulating the leather preparatory to its becoming belting, but I believe just a bit of reflection on what we have demanded, in the course of years, from tanners and belting manufacturers will give us a glimpse of the matter.

For years we have demanded a heavy single belt that must weigh a specific number of ounces per square foot and we got it—not always in thick heavy leather but in artificial weight. We convert a bale of cotton into a usable product in just a few days, weeks, or a month, but few stop to think how long an animal has to live on a farm or range to produce quarter inch leather: therefore it is logical that someone has become wise enough to puff up the leather for thickness and to add artificial weight. This may or may not be true but it makes a handy argument for my line of reasoning.

Another thing we have demanded is a clear bright tannage showing no heel or wire scratches and other surface defect in the grain or hair side; we wanted a "high yaller" color and we got it by certain bleaching processes that most certainly did nothing for the good or added nothing to the lasting qualities. During this cycle, if I may call it such, we occasionally saw a buffed or sandpapered belt—why? Purely to get rid of surface scratches or slight defects that barely got deeper than the cuticle or grain surface and never reached down into the tough fibers of the flesh side of the leather, where practically all of the strength is.

We demanded so called "center stock", very firm on the grain side so that in bending it showed no wrinkles or very tiny ones. In my ignorance, I would say that there were not enough centers to go around, but we got center leather right on—at least in appearance.

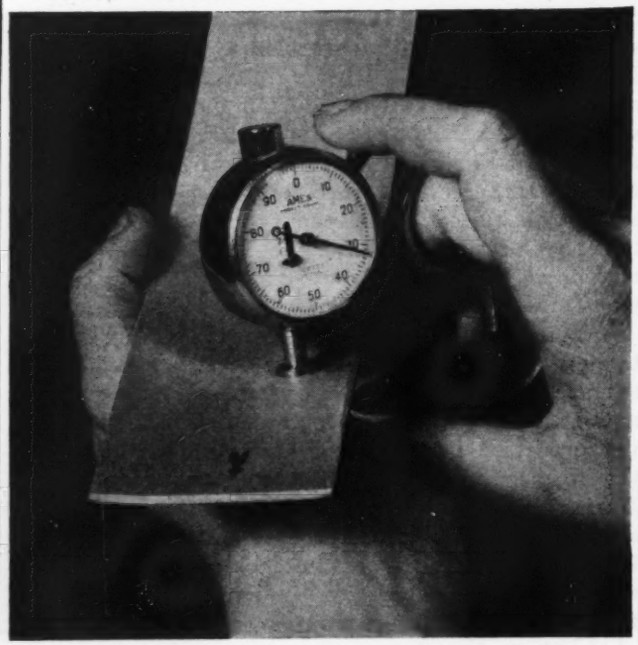
How could that be accomplished? Well let's say that as we cut farther and farther away from the backbone we get a leather of looser texture down on the sides of an animal where the expansion and contraction of the breathing movement takes place. Therefore, rolling or pressing with certain kinds of paste or fillers might compress the loose fibers and stick the grain down to make the leather look firm—so called "center stock".

It is my observation that with rolled or compressed leather, I believe the word is "jacked", if we bend a strip abruptly with the grain or hair side outward we can really crack the surface, especially if there is the least bit of overtanning. So maybe we have drifted into turning the grain side of a belt to the pulleys where it can't crack but is compressed.

The natural conclusion is to purchase a leather that is not artificially colored or polished or buffed, from a reliable manufacturer, stick to double belting so far as possible, and where singles are in operation, run the hair side next to the pulleys, not because of longer life or less slippage, but because it puts the long fiber of the flesh side outward where the curvature of the pulleys puts the greatest strain on any belt. Besides, the soft fiber next to the flesh is more elastic than the grain.

Running the belt this way makes a so called compensated belt in the single. That is, the outer side travels faster than the inner side when it is going around the pulley and yields to stretch better, whether it be single or double.

CONTRIBUTOR No. 6670



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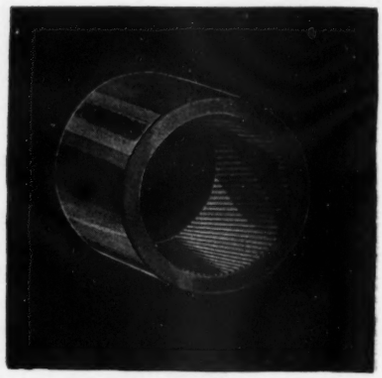

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Sleeve BEARING HEADQUARTERS

Further Discussion on Needle-Point Grinding

ON PAGE 71 of the January, 1937, issue of COTTON *there appeared an article on needle-point grinding by H. G. Lyon concerning the advantages the author has found in this method of grinding cards. On page 137 of the June, 1937, issue of the paper* "CONTRIBUTOR NO. 6652" *requested an interpretation of some of the points as developed in the article by Mr. Lyon. He said "Upon examining the diagram, accompanying the article, which showed three stages of the wire points before and after the needle-point grinding, I found that Fig. 1 (before needle-point grinding) does not show the wire has been ground on the sides. Still this diagram is supposed to give us the shape of the original point, before needle-pointing." This contributor also asked if the original strength is maintained in the wire from the knee to the point, and stated that he believes the needle-pointed wire will become dull quicker because the coarse brush wire has a finer edge to rub against. He further brought out that when the wire is ground lightly after needle-pointing, the rollers would have to be perfectly balanced or else the wire would receive varying amounts of grinding.*

Mr. Lyon read this letter in the June number and replied as follows:

EDITOR COTTON:

The wire shown in the sketch is *not new* wire but an enlargement of old wire before being needle-point ground. We grind *only* the *old* clothing with the needle-point grinder. This is to restore the wire and to give it a tapered point. The original point, after about seven years of use, is ground off; therefore needle-point grinding is applied, and the sides of the wire are ground, thus restoring the point as the original wire.

I find that needle-point ground wire is no more subject to damage than the original card clothing. It is just as stout as the original wire and will withstand the scraping back into position if necessary.

Does the brush-stripping method damage the new wire? No! Furthermore it does not damage needle-pointed wire. I wish also to state that I get just as much carding per hour from needle-point ground wire as from new wire, or wire ground with the regular traverse roller grinding method. The needle-point ground wire will carry without damage just as heavy a card sliver as ordinary ground card clothing.

When grinding clothing that has been needle-point ground, the grinder is not likely to grind any heavier than he does on wire that has not been needle-pointed, for he knows that if any card clothing is ground too heavy he will not get good results, and this will hold true on any type of wire any place.

So let's remember that needle-point grinding is for the restoration of old clothing so as to get a few more years of good service from the wire, giving us results and savings.

H. G. LYON

Another letter concerning "CONTRIBUTOR NO. 6652's" *discussion was received and is given herewith:*

EDITOR COTTON:

"CONTRIBUTOR NO. 6652" omits one vital point, and that is the clothing is ground, or I should say, reground in exactly the same manner and by the same side-grinding discs as used by the card manufacturer originally.

The term "needle-pointed" is really a misnomer, and is used to convey to the mind extreme sharpness. A real needle-point on card clothing would be useless as it would be too frail. In re-side-grinding, or needle-pointing, the effect aimed at is to re-establish the points as they were when new, and before they become thick or blunt; the result is a point similar to that possessed by the clothing when new, and is no weaker or thinner than when new, although it will be shorter owing to the wires having lost their original length by wear and tear of carding and surface grinding.

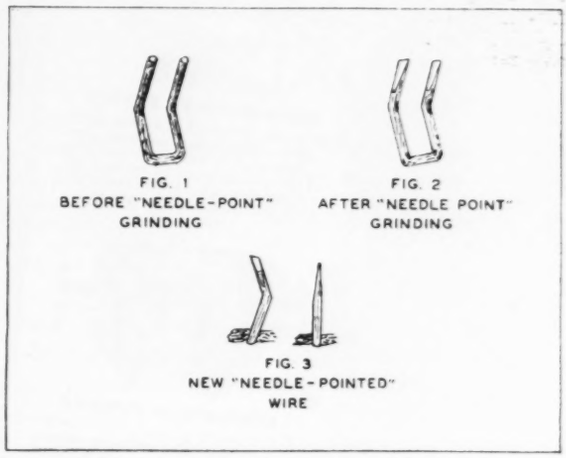

FIG. 1
BEFORE "NEEDLE-POINT" GRINDING

FIG. 2
AFTER "NEEDLE POINT" GRINDING

FIG. 3
NEW "NEEDLE-POINTED" WIRE

"CONTRIBUTOR NO. 6652" is, in my opinion, wrong in stating that with good traverse rollers well covered with grooved fillet, sufficient side-grinding is obtained. Emery fillet, grooved or plain, cannot side-grind; it can only surface-grind the extreme points, and it is owing to the surface-grinding that the wires are robbed of their extremely fine points; the wire having become blunt can only be re-pointed by actual side-grinding, the emery wheels performing this by automatic feeding down to the bend and back to the point.

On the question of surface-grinding it is necessary to point out that with the emery set to the wire at the proper abrasive depth, the wires are bent over only about 9 degrees; if set any deeper too heavy a grinding would result with attendant barbs, or hooks, and eventual breaking out of the wire either at the bend or the foundation.

The inventors of a world-renowned emery fillet do not claim side-grinding properties for their patent grooved emery fillet; they invented the grooved type in order to bring to the surface every available grain of emery which, being in this particular case of pyramidal shape, would stand up in regular grooved lines with a saw-tooth formation. It will be seen that to set the emery grooves into the wire so deep as to

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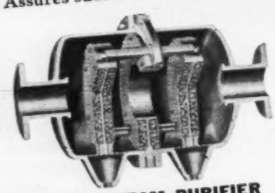

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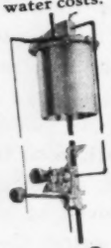

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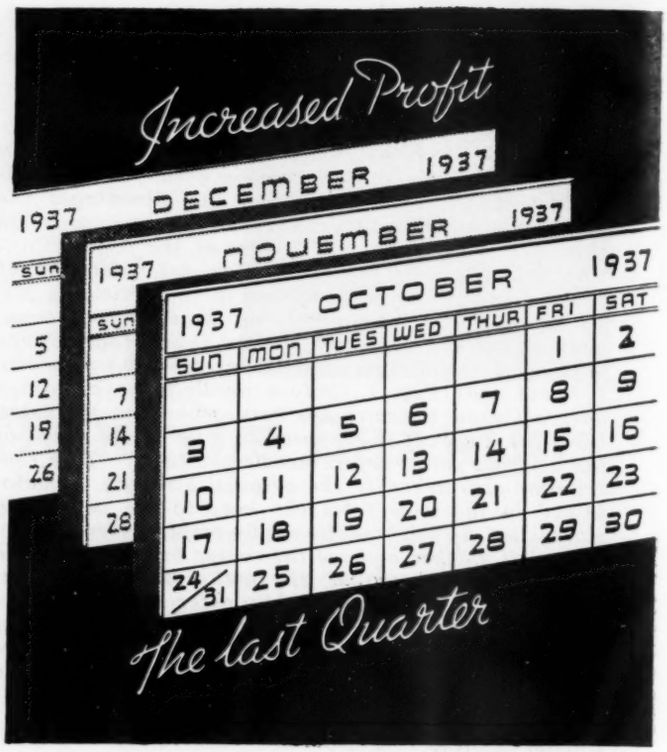
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effect side-grinding, the wire would suffer by too keen abrasion. The cut necessary for ordinary surface-grinding is only probably 1/64-inch whereas in side or needle-point grinding the wheels are set gradually in the wire to a depth of about ⅛-inch when new and almost this amount when the wire has worn shorter and simultaneously thick at the extreme points.

By far the greatest proportion of card clothing in use today is side-ground, and frequently invoiced as needle-pointed. The introduction of the needle-point grinder is only a recent addition to the card room and serves to restore to worn card clothing its original point; the new grinding process not only does not "upset the true carding process" but assists materially in maintaining it.

I understand that the inventors of the automatic needle-point grinder are now offering a new type of grinder which is also automatic but which can be run in the ordinary grinding steps, dispensing with the dismantling of the licker-in and other parts. This new apparatus should remove any objection to the extra work entailed by the original grinder.

CONTRIBUTOR NO. 6714

Wash Answers His Own Questions

EDITOR COTTON:

On page 90 of the July issue of COTTON you published some questions that I asked. As some of our readers might want to know my own answer to these, I am submitting them as follows:

1. Referring to any differential, what is meant when we state "the additional compounded speed or additional impetus caused from the cone"? The cones may be figured theoretically correct with the bobbin and the spindle traveling together, aside from the motion of the sun wheel. Perhaps instead of saying theoretically correct, we should say "before the additional factors of slippage, or difference in tension between the empty and full bobbin due to the slight variation in pressure of the paddle and the difference in diameter as the bobbin builds". The other factors are considered and a pair of cones can be figured correctly by mathematical methods.

After these matematically correct cones have been calculated, several other factors, including those just mentioned, have to be considered, and the form of the cones modified. Each of these factors, in part, can be figured mathematically but some, such as the amount of compression, which rules the contour of the cones, in the building of the bobbin have been checked practically in addition to the calculations. Therefore, the cones have to be modified to get a uniform tension from the empty to the full bobbin.

Still another way of looking at it is that with the cones correct when the bobbin and spindle travel together, as on the Holdsworth compound, modification must be added to take care of the difference in the surface speeds of the spindle and the bobbin, and then you have the foundation cones on which to build or modify the form to take care of these other factors. This foundation cannot be as simple, and therefore as sure, as the foundation of a pair of cones mathematically correct and easily arrived at with the spindle and bobbin traveling together. It follows then that any compound such as the so-called differential cannot give as good a tension as a compound of the Holdsworth principle.

2. Why is the Holdsworth compound a more simple proposition regarding the cones than a compound wherein there is a differential or difference in speed between the spindle and the bobbin? Let us figure one new differential:

$$\frac{18 \times 16}{30 \times 48} = 1/5 \text{ loss.}$$

In other words, you have a difference of 1/5 loss for every revolution of the driving shaft. So to make up for the loss we must have a 50-tooth bell gear.

3. Can the same cones be used on both the Holdsworth and any new differential? If not, why? No! Because the speed of the bottom cone must be greater to drive the bell gear at a greater speed than that of the driving shaft during winding of the roving.

4. When cones are modified for any differential motion, should more factors be considered than with the Holdsworth motion? What are the factors? Yes, because a higher speed bottom cone causes more belt slippage and this combined with the difference in speed between the spindle and bobbin are the extra factors to consider.

5. What type gives us the most simple and sure foundation of a pair of cones, the Holdsworth motion or any differential? Please explain fully. A certain machine company some years ago had the audacity to make the following claim: "The cone is no longer a driver but is now only a regulator as the power is taken direct from the main shaft; therefore there is no more trouble caused by cone belts breaking or slipping." What a claim? No practical man can deny that cone belt breaking is as common with the new differential as with the Holdsworth compound. However, this company got away with it for a number of years, and now their claim is, "moreover, since the power transmitted through the cone belt drive is greatly reduced, all slippage in this important function is overcome." That is better.

So at this point let us compare the two motions by considering the excess speed only, and remember that since the year 1897 the Saco-Lowell Shops have inserted a sleeve between the differential sleeve and the main shaft on all of their fly frames. The idea overcame the great amount of friction and breakage caused by the several bevel gears of the old style compound moving at double the speed of the jack shaft.

Now let us consider the merits of the two devices. Let us make the following test on both: Have someone turn the bottom cone by hand and watch what happens. On the Holdsworth compound this action revolves the sun gear in the opposite direction to

"CONTRIBUTOR NO. 6684" answered these questions in a letter that appeared on page 109 of the August issue.—The Editors.

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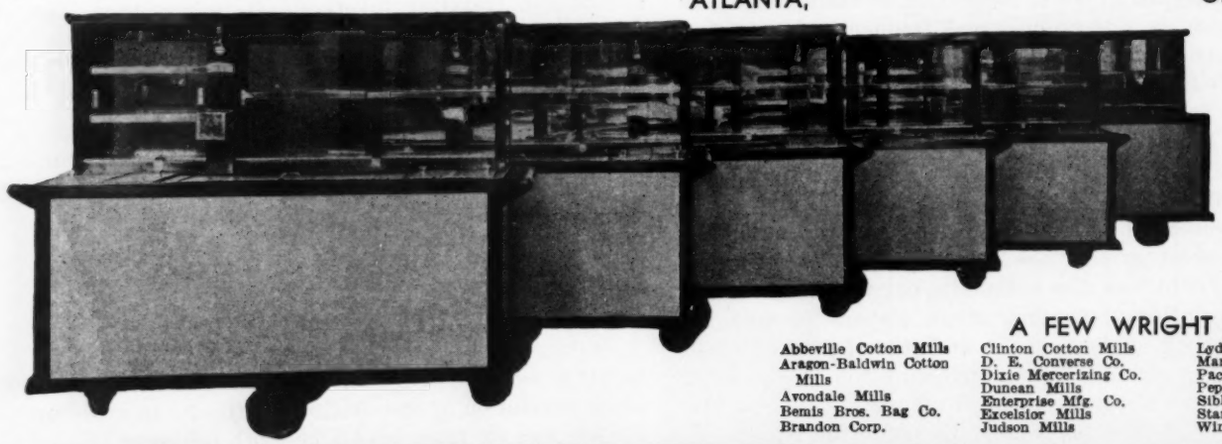

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that of the driving shaft. The two idler gears circle the fixed gear on the main shaft and the speed of the sleeve gear is compounded because one revolution of the gear will give one revolution to the sleeve gear, and of course the circling of the idlers around the fixed gear will give another revolution. So, for every revolution of the sun gear the sleeve is given two revolutions, and the same action takes place when the frame is up to speed. It should be seen at this point that the cone belt has less to do, for in some cases the sun gear has 140 teeth, while the take-up gear or compound pinion has only 20 teeth.

Again, with the frame stopped we make the same test, and when we turn the bottom cone, this in turn revolves gear 18 in the same direction as that of the driving shaft, gear 18 meshing with gear 30 on a stud that has on the other end of the stud a 16-tooth gear meshing with a 48-tooth gear, and the same housing carrying a bell gear of 50 teeth.

So, it can be seen that as the spindle gear on the shaft driving the spindles has 40 teeth and the bell gear 50, with a loss of 1/5 revolution, both gears are equal to 40.

The thing to remember when making the test is that you get no help from the standard speed. So the reader should see clearly that the speed of the bottom cone must be greater on all differentials in order to drive the bell gear at a greater speed than that of the driving shaft. When the frame is started, especially after doffing, the impetus given by the bottom cone to the train of gears from the bottom cone gear to the sleeve gear gives a reaction which causes the cone belt to slip. On hot days this is more noticeable, and it is a well known fact that you have more trouble with these so-called new differentials in the summer months than with the Holdsworth compound. That is why I favor the Holdsworth compound.

WASH (R. I.)

Yarn Slipping on Beam

EDITOR COTTON:

On page 129 of the June 1937 issue of COTTON there appeared a question by "CONTRIBUTOR No. 6662" who is having trouble with the yarn slipping on the loom beams and wearing out the selvages against the beam heads on 65x72, 54-inch fabric, woven on a 56-inch Model E loom. In trying to give this man some help I am at loss because he says nothing about the weight of the goods and the number of the yarn. A 65x72 construction can mean very light goods or it can mean heavy goods.

We have had a few instances on heavy work where the warp slipped on the loom beam; of course this was due to carelessness at the slasher. We anchor our warp to the loom beam by placing a stick ½-inch square on the end of the warp and driving it down into the groove in the loom beam barrel. This is done at the start of every new warp on the slasher.

I have had slasher men run the machine with too little friction on the warp, making a soft warp that would cave in when the tension was put on it at the loom. The remedy, as I see it, is for "CONTRIBUTOR No. 6662" to fasten his warps with a stick as mentioned and to wind the yarn on the beam firmly at the slasher. However, he should not put too much tension on the warp at this point or he will stretch it.

CONTRIBUTOR No. 6672

EDITOR COTTON:

In answer to "CONTRIBUTOR No. 6662", who is having trouble with the yarn slipping on the beam, I take for granted that the entire warp is not slipping on the beam or this would have to be corrected in the preparatory department.

My idea is that the yarn is spreading after it leaves the loom beam and the selvage is rubbing against the beam barrel. To remedy this I suggest that he use a wider beam—that is, have more space between the beam heads. Next, he should move his whiprolls back as far as possible. Moving the whiprolls back would give the yarn more time to spread and thus keep it off the beam head.

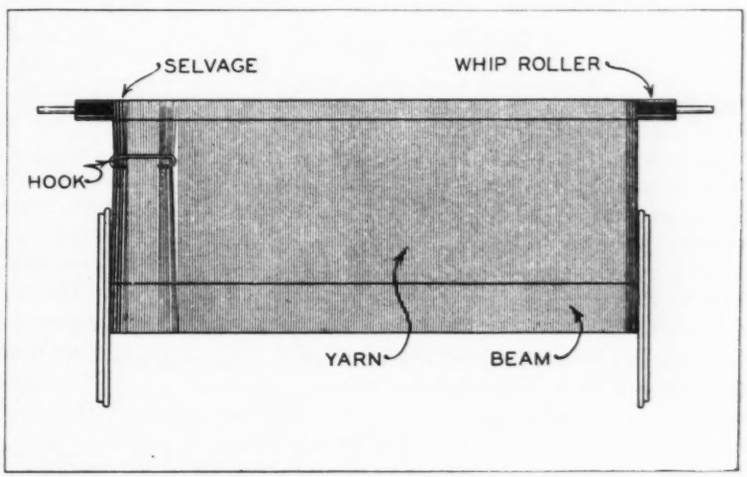
If "CONTRIBUTOR No. 6662" will make some hooks of dropwire bars, or of some other metal, he can place this in the warp and around the selvage and it will hold the selvage away from the beam head.

CONTRIBUTOR No. 6673

EDITOR COTTON:

Answering "CONTRIBUTOR No. 6662" who is having trouble with the yarn chafing on the beam heads on looms, I would check to see if the width in the reed is wider than the width between the beam heads. If this is true, I suggest putting in enough new beam barrels to take care of the 54-inch cloth. If the beam is wider than the width in the reed, it is impossible for the selvages to run against the beam head and wear out.

CONTRIBUTOR No. 6674



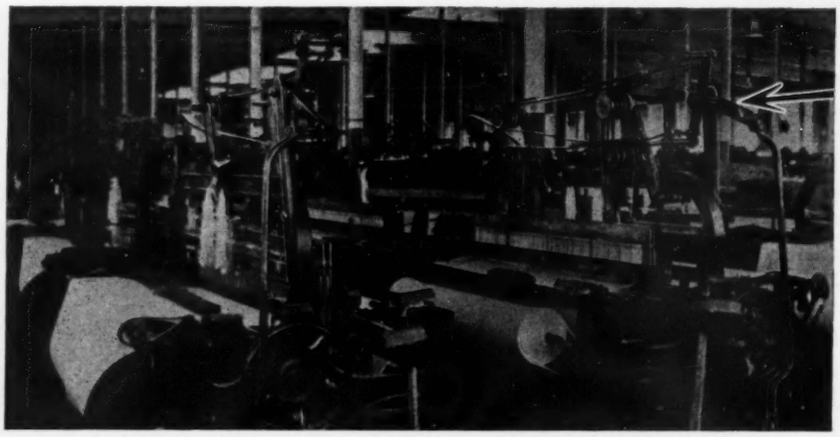
Hooks of drop wire bar metal hold selvage away from beam.

Marquisette Woven Without Dobby

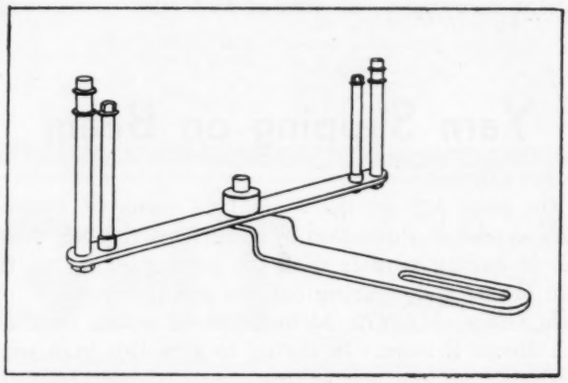
EDITOR COTTON:

Our company once had a demand for plain marquissette cloth but there were no dobbies available at the time to weave the cloth, our other dobby looms being on another demand material.

We placed an ordinary dobby rocker arm on a stud attached to an upright casting on the loom arch and connected to it a rod that is used on the dobby; the connecting rod was from the bottom shaft to the rocker arm and operates the arm. The studs nearest the end of the rocker arm operate the leno harness and the studs nearest the center of the rocker arm operate the selvage harness because these harness do not require so large a shed as the leno harness.



Above, illustrating how jumper is operated from top shaft. Below, enlargement of same



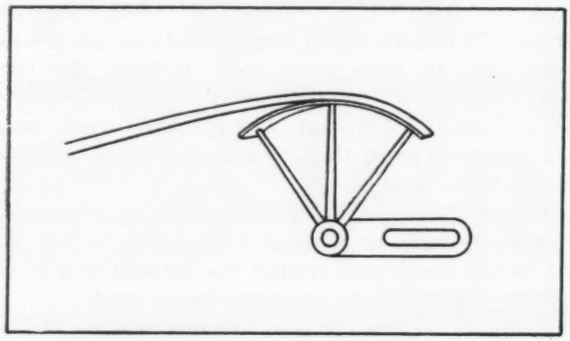


Fig. 1. Lever on dobby rocker arm stud.

Noticing the photograph, the jumper is operated from the top shaft at the opposite side of the loom from the dobby arm.

On looms set up later, we put the lever shown in Fig. 1 on the same stud as the dobby rocker arm; its position was at the back of the arm and it receives its motion from the top shaft. With this arrangement there were no harness skips because the motion was positive.

This arrangement was also used for a poplin weave on 6 harness, and if necessary it could be used for heavy sley broadcloth on 6 harness. The size of the sheds could be varied by hooking the front harness on the studs near the center of the dobby rocker arm, and the back harness to the studs near the ends of the dobby rocker arm.

Thus, if there happened to be a lull in the marquisette business, the same looms could be used on other weaves. CONTRIBUTOR NO. 6650

An Old-Timer Says—

(Continued from page 103.)

hand-over-fist, but there is such a small percentage of them who can save money. OLD-TIMER swears to me that he has never spent a single five cents that he has made on the side, during all of these years, for his personal pleasure. Most men you know when they make a piece of money on the side say to themselves: This came pretty easy, so here goes; I'm going to have a new car, or they will blow it in some way, but, not OLD-TIMER; he never spent five cents of his, but started buying a little real estate or a little mill stock, not only living on what he made in the mill but saving always not less than 25 per cent of his wages to put into his investments; then, as he got into the salaried class his percentage of savings went up in proportion. He let the other fellow have a new car every year, and the other luxuries in which most men indulge as soon as they are making enough to do so; even after he got to be manager of a large plant, instead of enjoying a game of bridge or a show, etc., like the other fellows, his nights were planned just like his days; one night was set aside for constructive reading and study, another for textile work, and so on, leaving him only one night per week, in addition to Saturday, for pleasure, and on that night he usually went to a movie. Fellows, he has done more work in the same length of time than a half dozen—

Yeah, yeah, JIM, *I guess you are right. Say, fellows, I guess a little work doesn't hurt anybody.*

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213. Saco-Lowell Cotton Machinery—Twisting—a 36 page illustrated brochure explaining the company's twisters and parts, including the four basic type twisters, features of new construction and general notes on twisting. Production calculations and specifications are included. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56-page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

216. Cutting Costs with Liquid Caustic Soda—a 72 page hand book packed full of useful information on liquid caustic soda, including unloading and handling properties of caustic soda and its equeous solutions, sampling and analysis. Of practical value to executives, buyers, chemists and operating men. Sent without obligation by writing on your business letterhead to the Mathieson Alkali Works, 60 East 42nd St., New York, N. Y.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog, attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

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222. "Onyx Processing and Finishing Compounds"—A new 56 page catalog describing the entire line of processing and finishing compounds and covering every process on all types of fabrics. Also included is a comprehensive article on the subject, "The Importance of Accurate pH Control." Onyx Oil and Chemical Company, 15 Exchange Place, Jersey City, New Jersey.

223. Alloyed Iron In Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

227. Stainless Steel Valves and Pipe Fittings—complete illustrated catalog, together with price list, covering stainless steel valves and pipe fittings, giving all dimensional data, etc. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

228. Solutions for Your Problems—20-page illustrated booklet containing valuable information on the scouring and processing of wool and other fibres. Detergent Products Corp., Atlanta, Ga.

231. Spindle Tape Lacing Equipment — Illustrated folder describing the new Clipper spinning tape lacing equipment, gives vibration chart, prices, specifications and other valuable information. Clipper Belt Lacer Co., Grand Rapids, Mich.

232. Condenser Tape Lacing Equipment—Describing in detail the new Clipper condenser tape lacing equipment, this folder contains table of decimal equivalents, prices, specifications and illustrations of the lacer, hooks and cutter. Clipper Belt Lacer Co., Grand Rapids, Mich.

233. Catalog No. 22—an attractive illustrated catalog describing in detail the Shamrock shipping containers and the new canvas trucks for textile use. Mecca, Inc., Madison, Ind.

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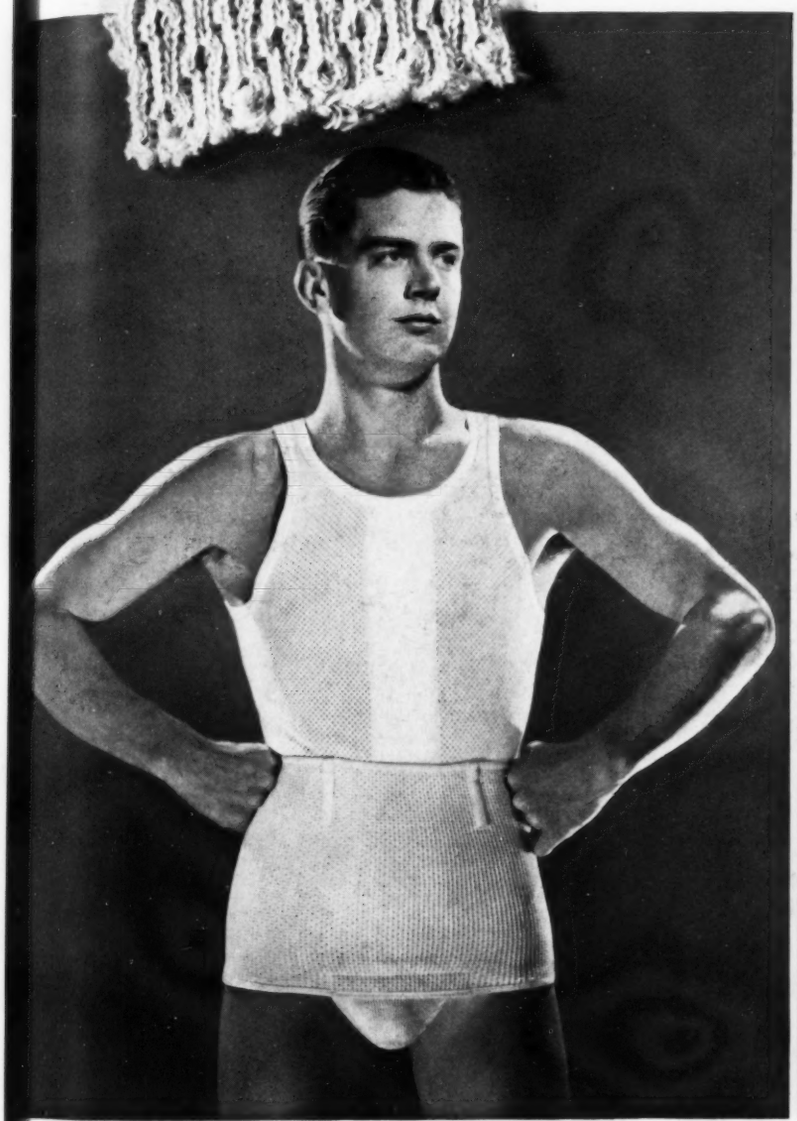

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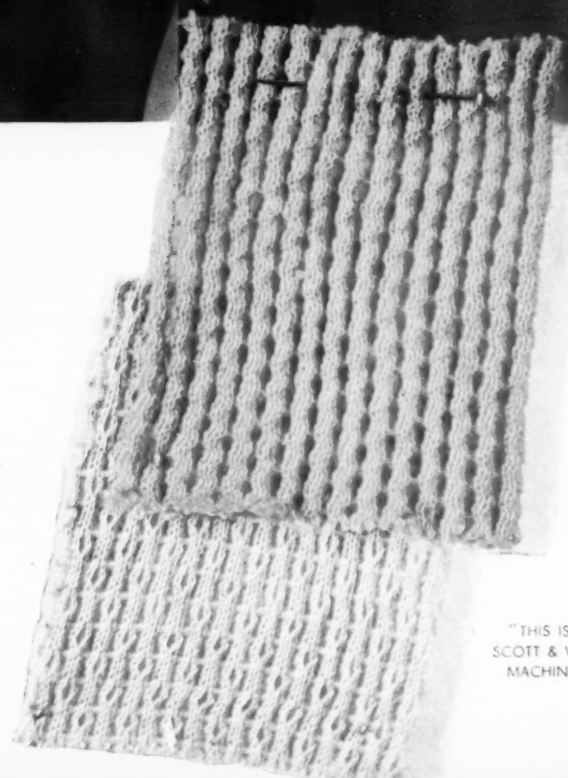

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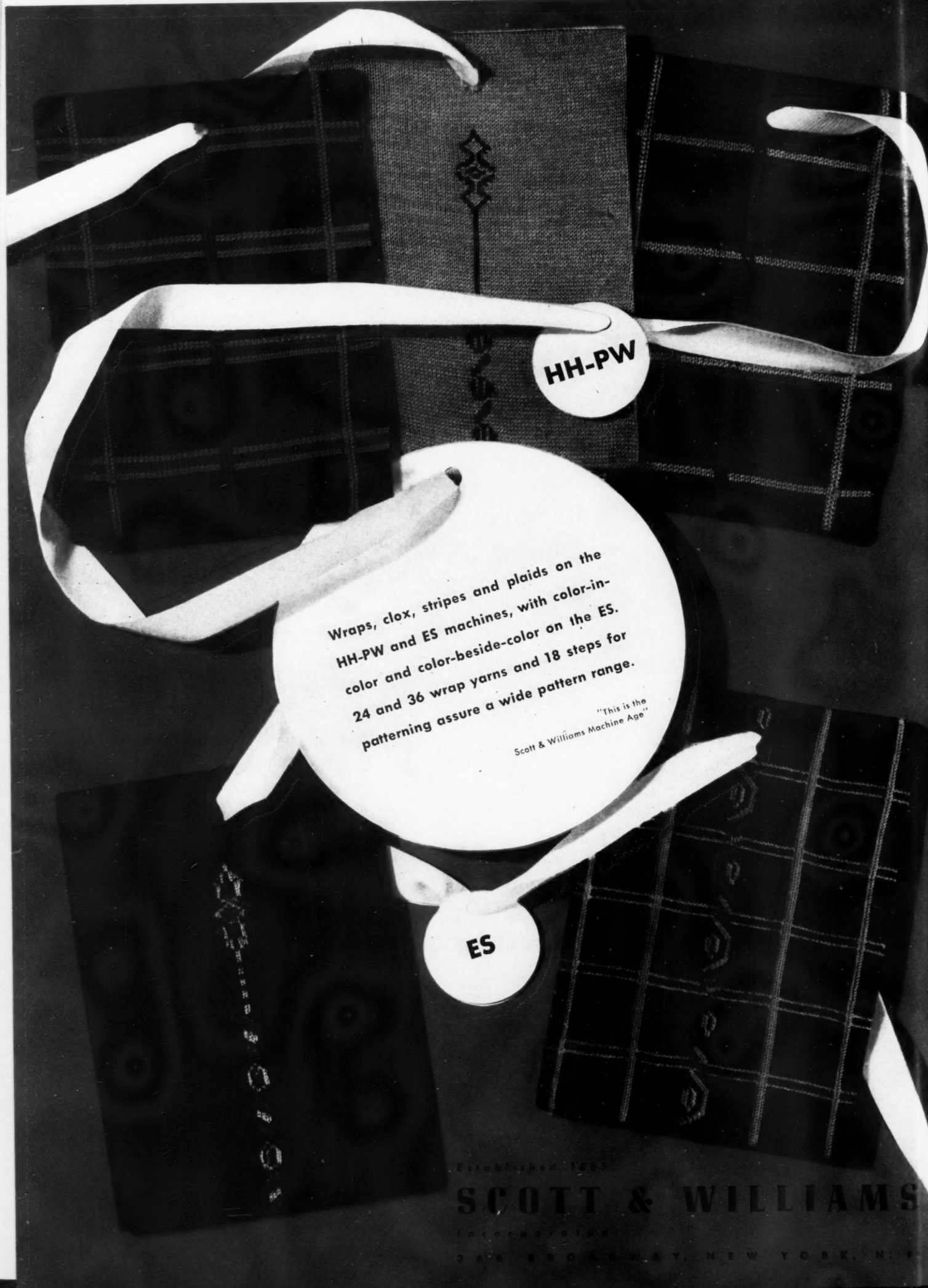
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The Maintenance and Fixing of Full-Fashioned Hosiery Machines

THIS is the third installment of a series of articles on full-fashioned machine maintenance, being prepared especially for COTTON by a competent mill man. The first installment appeared in the July issue and discussed the vertical motion of the needles, the second appeared in the August issue and covered the horizontal motion of the needles, the function of the regulator, etc. This one gives an analysis of the catch bar. The author will discuss any particular phase of fixing you desire.—The Editors.

By Arthur J. Cobert

Complete Catch Bar Analysis

IN THIS INSTALLMENT we will discuss the catch bar, that part of the full-fashioned machine which governs the working motion of the sinkers and dividers. The catch bar is comprised of two movements, one horizontally, controlled by the back catch bar cams, and two vertically, controlled by the front catch bar cams. There is also a horizontal movement controlled by the back catch bar narrowing cams during the narrowing motion. The vertical motion remains stationary during this period.

During the yarn kinking motion of the sinkers the catch bar remains in a stationary position until the last two or three sinkers move forward, at which time the catch bar commences its forward movement until the highest point of the cams is reached. There is some difference of opinion as to the exact timing of this movement and from experience we find the answer is quite arbitrary. Where a shock absorber is employed to retard the movement of the carriers at the end of the stroke, it is obvious that too early starting of the forward motion of the catch bar will only result in the last sinker being struck by the carrier. Therefore, it is suggested that the catch bar remain stationary until the last two or three sinkers start forward. This adjustment is controlled by timing the clutch and will be explained in a later article.

When the catch bar reaches its utmost forward position, the front cams begin to lower the bar sufficiently to cover the sinker butts so that it may draw them back in unison. The catch bar recedes gradually, allowing the needles to move toward the presser edge until reached. It now remains idle momentarily to prevent distortion of the loops while the needles are in the press motion. Adjustment of the catch bar at this point is critical. If it is too far back, distortion of the loops results. If it is too far forward, the sinkers and dividers, by virtue of the yarn loops, will hold the needles from pressing correctly, which will cause two or more stitches to remain on them. The catch bar then continues to recede until the loops drop over the edge of the sinkers and dividers. At this point the catch bar must be synchronized with the needles in such a manner as to cause no hanging of the loops on the sinkers and yet sufficiently close to prevent the yarn at the selvage from throwing around the wrong sinker. After the knock-over motion of the needles is completed, the catch bar starts forward again, this time to hold the loops from raising with the needles. When the needle tips come level with the throats of the sinkers, these throats should be sufficiently in front of the needles to prevent any yarn that may be lying across them from getting behind the needles. Where a yarn change is made the thread in the carrier just removed will be clipped off unless this setting is correct. As the needles continue upward, the catch bar returns to its original position.

An Explanation of Fundamentals

Before we discuss the actual gauging of the catch bar, we will attempt to explain certain fundamentals which in the end determine the exact position of this important part. When properly adjusted, the sinker tips should not protrude or be visible in the sinker heads when the catch bar is in the normal position. At the same time these tips should be practically flush with the edges of the heads. A simple method to determine just how far back the sinkers are in the heads is to push several sinkers out with the fingers from behind and then push them back again with the thumb along the tips until they are flush with the brass. By observing the position of the dividers, it is easily ascertained whether the catch bar is out sufficiently at that point. This does not mean that an accurate setting can be made by this method as there are other factors to be reckoned with, but it will give the fixer something to work with in the event there are no standard gauges available. When the catch bar is on the highest point of the cams or in its extreme forward position, it should push the sinkers within two or three thousandths of an inch of the verge plates. If the tolerance is greater than this, the catch bar cannot be depended upon to perform accurately under all

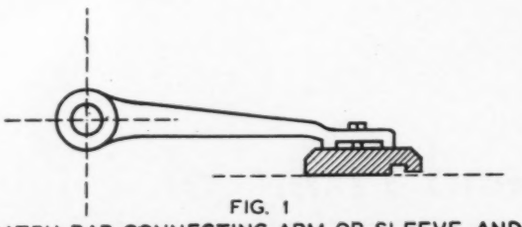


FIG. 1
CATCH BAR CONNECTING ARM OR SLEEVE AND CROSS SECTION OF CATCH BAR WHEN BOTH ARE PARALLEL TO ONE ANOTHER.

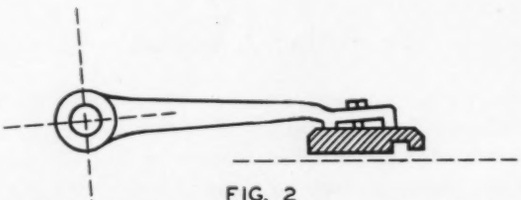


FIG. 2
WHEN CATCH BAR SLEEVE IS FILED OFF BEHIND THE SCREW, IT RAISES THE CATCH BAR, PERMITTING MORE CLEARANCE BETWEEN TOPS OF SINKER BUTTS AND CATCH BAR ITSELF.

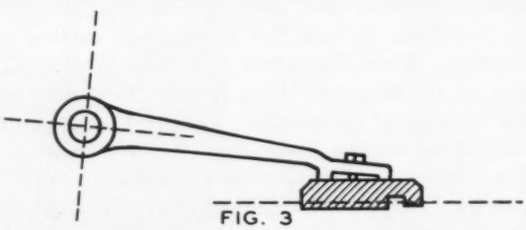


FIG. 3
WHEN CATCH BAR SLEEVE IS FILED OFF IN FRONT OF SCREW, IT LOWERS CATCH BAR, REDUCING CLEARANCE BETWEEN SINKER BUTTS AND CATCH BAR.

conditions, such as in knitting the heavier portions of the fabric. As this amount cannot be measured with a micrometer or any sort of a gauge the fixer must learn to determine this clearance by feel with the pliers.

Not to have any clearance between the sinker butts and the verge plates at this point of the catch bar is not in itself an undesirable feature, but if the sinkers are tight there is no way to be certain that they are not jamming against the verge plates, which, of course, would cause considerable damage. This is one of the most frequent causes of broken sinkers not to mention excessive wear of the verge plates. This condition also prevents the catch bar from dropping on the sinkers accurately as too much pressure is exerted against them and the catch bar cannot lower until this pressure is relived by passing over the high point of the cams and starting to recede.

From the foregoing, it is easily understood that a small amount of clearance is better than none. So much for the two extreme horizontal positions of the catch bar. The length of the horizontal stroke depends upon the setting of the verge plates and the distance from the outside diameter of the half round cams to the highest point of the working cams. If the high points are worn the catch bar will not operate far enough forward to take the sinkers successfully. Now, if the catch bar is brought forward to compensate for this loss, the entire motion will be distorted and the machine will perform poorly. It is far better to adjust the high points to take care of this wear. The half rounds of the cams may be worn to such a point that no accurate setting can be procured while the catch bar is in the normal position. One a little higher or lower than the other will cause the fixer to set the catch bar out of line, although his gauge will show the setting perfect. With the introduction of drop forged cams and hardened steel rollers for the catch bar motion, much trouble has been eliminated from this source, there being practically no wear to this type of cam and little attention is required.

Vertical Motion Not So Complicated

The vertical motion of the catch bar is by no means as critical as the horizontal motion. The front catch bar cams are quite simple in form, merely having one riser and being perfectly round on the narrowing side. The important part is to have these cams synchronized with the back catch bar cams so that the catch bar will lower when the extreme forward position is reached. Too early lowering of the catch bar will cause the bar to lay on top of the sinker butts and drop on or rather slide on over the sinkers. This excessive weight will cause broken sinkers and have a tendency to make the catch bar miss. If the front catch bar cams are timed too late the bar will not lower until after it starts to recede. As the catch bar is drawing the sinkers and dividers back at this time, considerable pressure is exerted on the front part of the groove and it is very difficult for the bar to lower successfully. If this part of the timing is watched carefully, the balance of the motion will automatically be correct, as in returning to its normal position the catch bar vertical motion is not so critical.

The height of the catch bar is correct when the clearance between the sinker butts and the bar is at a minimum while in the normal position. In other words, the least amount of clearance possible, permitting the sinkers free movement when starting forward, is desirable. Too much clearance will not permit the catch bar to cover enough of the sinker butts while retrieving. As there is a certain amount of sag in the catch bar between the lift arms, care should be exercised in adjusting these arms to permit clearance of the sinker butts at the lowest point. It may be necessary to have a little more clearance than desirable in the immediate vicinity of an arm in order to have enough elsewhere.

Where standard gauges are available, their use is advised, as a machine should operate according to factory specifications. When it does not do so, the cause of trouble can generally be traced to some other point of the machine. To gauge the catch bar in its entirety, it is first necessary to be certain that all the cams are uniform both on the half rounds and the working points. The rollers must then be leveled out to pre-

vent any undue torsion of the shafts. On a machine previously erected, remove all back catch bar springs except one in the center, while the rollers are on the half rounds. This procedure will only be necessary where the arms are pinned to the shaft as on some types of machines. Adjust the rollers equally by feel from the center outward toward the ends, allowing a little more clearance between the rollers and the cams toward the ends of the shaft for the weight of the arms.

On machines where the arms are not pinned but merely clamped to the shaft, it will not be necessary to remove any of the springs. Simply open all the arm clamps along the entire shaft and if there is any twist in the shaft it will automatically adjust itself when the arms are free. The short arms leading to the catch bar itself should also be open at this time. When this is completed tighten the arms leading to the cams, leaving the short arms open.

There are several methods which may be employed from this point. The fixer will have to choose which one is most adaptable to his particular type of machine. Where no standard gauges are available simply set an adjustable table gauge with some other machine and proceed to set the catch bar accordingly. This gauge can be set either with the points of the sinkers and dividers or with the front edge of the catch bar itself. Either method will prove satisfactory. Begin with the left end of the machine and using the gauge tighten one arm at a time making an approximate setting until all arms are adjusted. Readjust the catch bar for close setting by use of the set screws mounted on the short arms where the sleeves or shifter arms hinge. On machines where the short arms are pinned to the shaft this is the only adjustment at this point. With what has been previously written on this subject the fixer can now tell by inspection whether the catch bar is set fairly accurate or not. Actual operation will tell the rest of the story.

Another method for adjusting the catch bar for its horizontal stroke is to place the rollers on the highest point of the cams (the rollers being equalized as before stated and all short arms free) and then pulling the catch bar with the hands as far forward as possible. This brings the bar up against the verge plates or in its extreme forward position without jamming. Then tighten all arms and turn the machine over until the catch bar is in the normal position. With an adjustable table gauge set to the average section, the catch bar can now be made uniform.

As the correct height of the catch bar has already been discussed in this article, we will study the proper means of attaining this adjustment. Most machines have only 4 front catch bar arms leading to the cams which can be very simply equalized. All lift arms must be loose so that no pressure is exerted from the catch bar and the rollers may then be leveled by feel. Some of the newer type machines have springs to hold the rollers against the cams which first must be removed for this adjustment. With the catch bar in the lowered position replace each lift arm into the socket of the connecting arms and tighten, exerting enough pressure to insure each arm fitting snugly in the socket without lifting the catch bar. Then turn the machine until the catch bar rollers are on the half rounds (the back ones) taking care not to allow the slurcocks to engage with the jacks in the event the coulier is connected. As the catch bar will be too low at this point this would cause the slur cocks to jam the sinkers.

Now, adjust each lift arm until the proper height is reached as before stated. The important point here is to have each lifter arm carry the same pressure or catch bar weight throughout. This depends upon the fitting of the sleeves or horizontal shifter arms. If a sleeve is found to be lifting the catch bar instead of allowing it to rest firmly on the lift arm, it may be removed and filed to fit. It may be filed either to raise or to lower the catch bar at that particular point as the case requires. To lower the catch bar, file that part of the sleeve on the under side, to the front of the screw hole. To raise the catch bar file the sleeve behind the screw hole. In determining which arm is unequal in pressure, it must be remembered that perhaps one arm pressing too hard will make it appear as if the adjoining sleeves are holding the catch bar too high. A little practice and careful observation by lifting each connecting arm with the fingers will determine the uniformity of the catch bar weight.

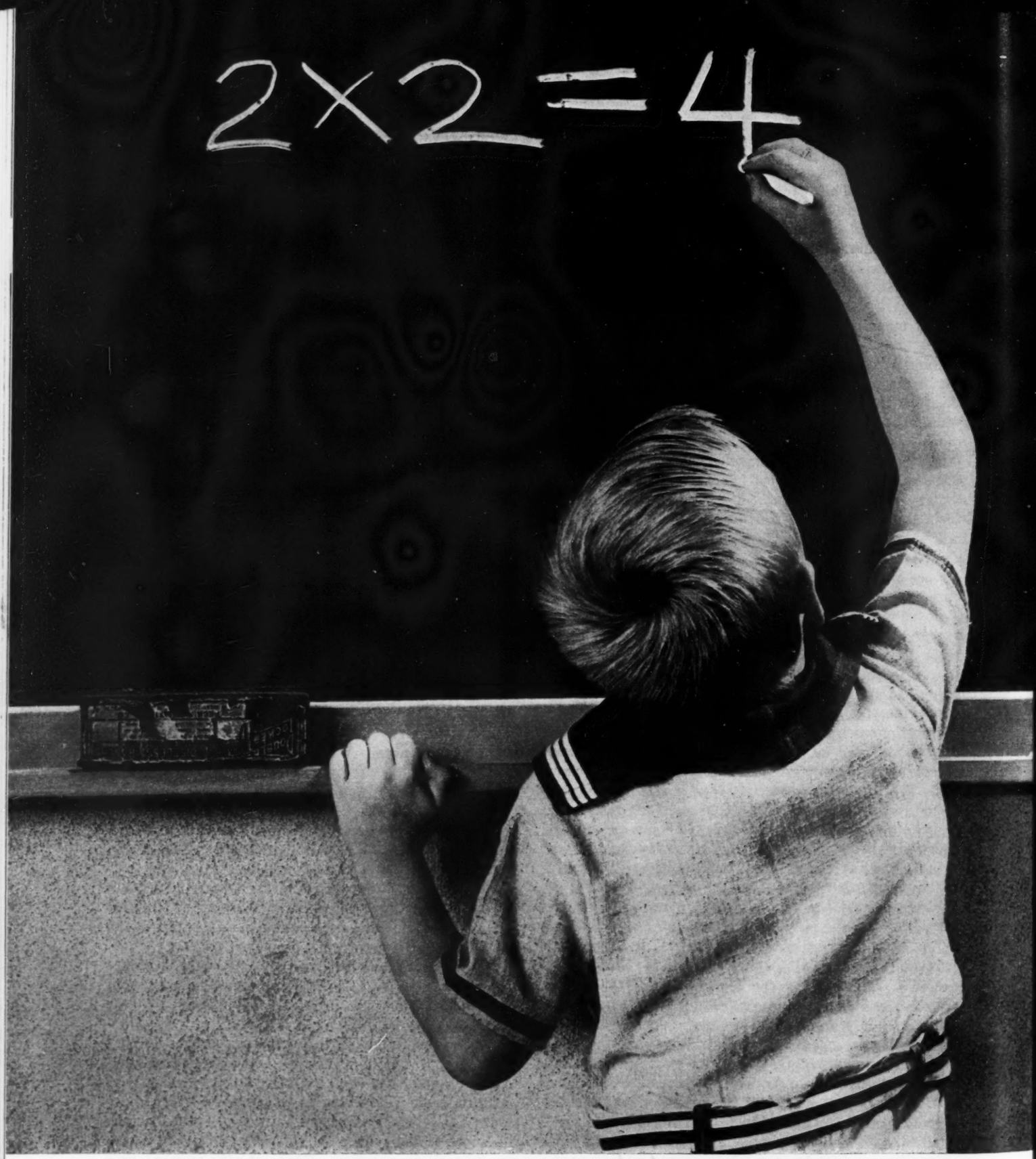
Uneven Verge Plates

One of the most common causes of the catch bar missing occasionally is due to uneven verge plates. Unless these plates form a fairly continuous line from end to end the catch bar cannot be expected to perform satisfactorily. Here again the standard setting of the verge plates is important. If too far forward, continual jumping of the catch bar will result unless the bar has been brought forward to prevent this, which only will cause distortion of the entire motion. If too far back, the catch bar will cause the sinkers and dividers to jam, resulting in broken sinkers and excessive wear of all parts concerned.

Proper lubrication of sinkers, dividers and jacks is important to good catch bar performance. Sinkers and dividers may become so gummy as to prevent the catch bar from retrieving the sinkers quickly enough. This will cause hanging of the loops on the sinker noses and cutting of the fabric. It will also prevent the sinkers from returning completely, leaving the tips exposed to the carriers.

The construction of the catch bar varies greatly on different types of machines. One type is constructed from a solid bar with the groove machined in with no adjustment whatsoever of this groove. Others have blocks inserted covering one or two sections whereby the width of the groove is adjustable. Both types work equally well in practice. There is still another type which has a flexible groove. This is accomplished by having the block which forms the back side of the groove mounted on leaf springs. This feature is an exceedingly desirable one from an engineering point of view.

As in everything else the catch bar requires the use of discretion and common sense on the part of the fixer for continued good performance. In the next article we will discuss the entire formation of the stitch on a full-fashioned knitting machine.



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The three-legged race. Left to right, Kibler and Newell; C. C. Cayce and Melvin Cooper; Hattersley and Gilchrist: Cowan, umpire.

At right, Fletcher Kibler, golf winner . . .

Chemists, Dyers, Mill Men Enjoy Mountain Party

THE ANNUAL summer outing of the South Central Section of the American Association of Textile Chemists and Colorists attracted more than 200 guests, including mill men, salesmen and others, with their wives and families. The event was held this year on August 6 and 7 at the Lookout Mountain Hotel, near Chattanooga, Tenn.

Nothing of a serious character was attempted, the occasion being given over to congeniality and competition in sports and games of various kinds. The affair was concluded with a banquet on Saturday evening, at which prizes were awarded, and a dance which followed the meal.

In the golf tournament, Fletcher Kibler, of United Hosiery Mills, Chattanooga, won the prize for low gross score with an 80. Frank Myers, of Geigy Co., Charlotte, won low gross for salesmen with an 83. Nestor Groteleuschen, of Magnet Mills, Inc., Clinton, Tenn., won low net score for mill men, with a net of 67, and L. T. Howells, of Cowles Detergent Company, Cleveland, Ohio, was low net winner among the salesmen, with a 67. J. W. Gilliam, Athens (Tenn.) Hosiery Mills, won the blind bogey golf prize for mill men, and C. W. Gilchrist, Charlotte Chemical Laboratories, and T. R. Johnson, of E. I. du Pont de Nemours & Co., tied for this prize for the salesmen. A. F. Bean and Roy Estes received prizes for making the most pars among the mill men and salesmen, respectively.

Fletcher Kibler and J. R. Newell won the 3-legged race; Mr. Kibler was first in the 25-yard dash, and C. W. Gilchrist second; Melvin Cooper won the cracker race, with Joe Bohannon second.

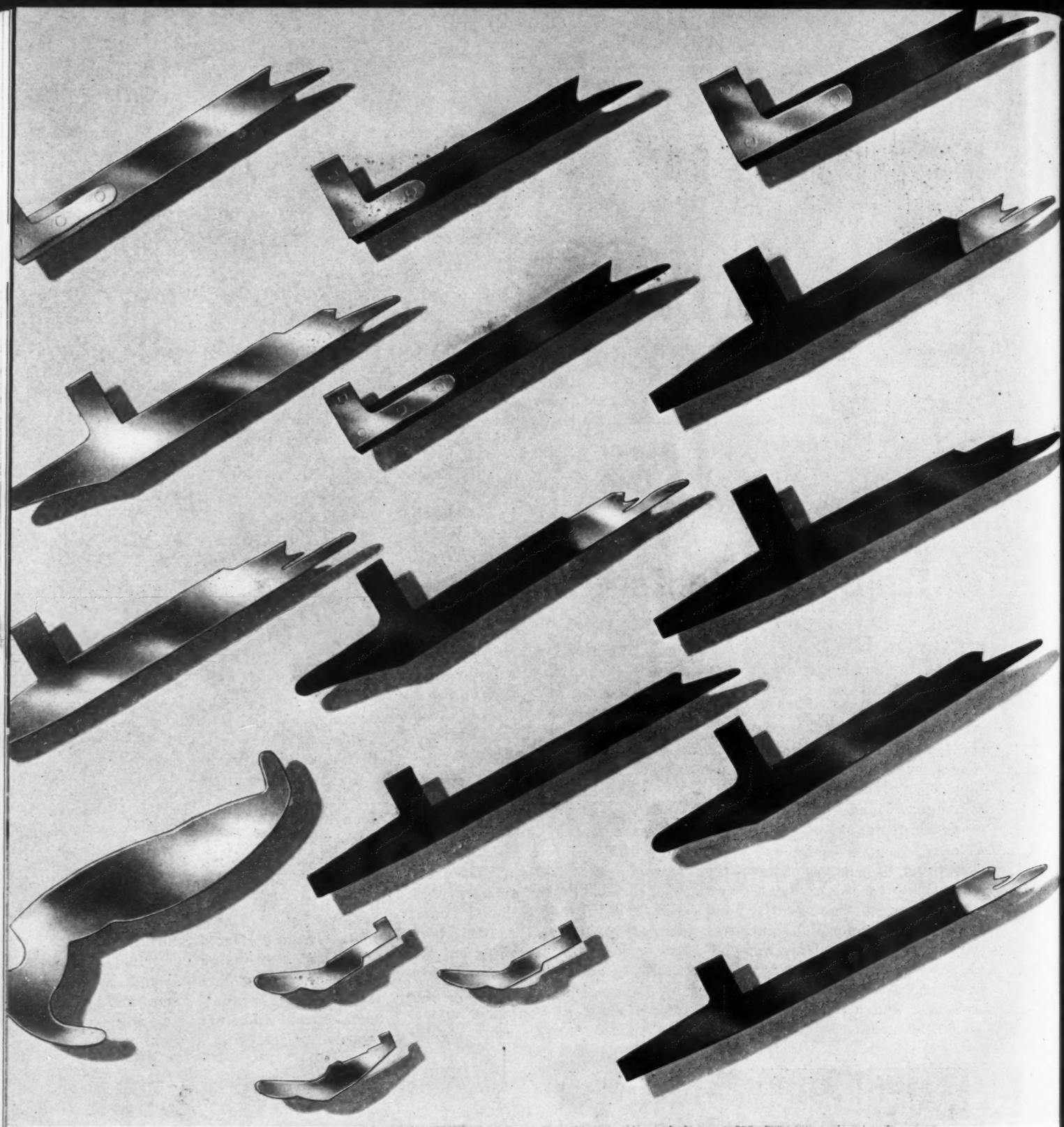
Cliff Campbell, Frank Cater, C. L. Glass, Murray Smith and Tommy Sledge won prizes at skeet shooting; and W. T. Evans, Lee T. Baker, Frank Cater, J. R. Newell, and Melvin Cooper won awards in the horse-shoe pitching contest.

Robert S. Wheeler, of Crystal Springs Bleachery Company, Chickamauga, Ga., was general chairman of the outing. Others on the finance and general arrangements committee were: Walter E. Hadley, Robert Cowan, John L. Dabbs, Jr., and Harold Schroeder.

The ladies attending participated in swimming, bridge and a cracker race, peanut game and hoop race, and winners were awarded prizes.

Pitching horseshoes, left to right: Melvin Cooper, R. C. Stuart, and A. T. McDowell . . . . . .

A golf foursome, left to right, Irving Royce, Roy Estes, A. F. Bean, and Pete Gilchrist . . . . .



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ROYERSFORD SINKERS

WE invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given but will be held in confidence and a pen name substituted when printed. All acceptable contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Drop Stitches Prevented

EDITOR COTTON:

On page 124 of the August issue of COTTON, "CONTRIBUTOR NO. 6690" stated that he is having considerable trouble with the end needles dropping stitches in the toppers' ravel courses and in the welts, and he invites discussion on the subject. This occurs on the 42-gauge full-fashioned machines while knitting an all-silk heel, where between the heel is knitted a separate section of mercerized yarn for topping waste.

We encountered this same trouble sometime ago and succeeded in eliminating it from the ravel courses but we still have a certain amount of it in the welts.

This trouble comes under the heading of bad selvage, of which there are two types and each type has several causes. The first of these is caused by one or more stitches being dropped and the second is caused by extra loops being picked up and making ragged edges.

There are several machine adjustments which will cause the stitches to be dropped, and adjusting the machine too far in the opposite direction will cause the loops to be picked up. Our problem is of the first type but if we touch lightly on the cause of the second it will assist us in locating the happy medium.

If the machine is adjusted in such a manner that it permits the selvage stitch in the welt to be dropped, we are safe in assuming that it will produce the same results at all other selvage points as far as the relation between the needles and the sinkers is concerned. The yarn carrier has a part in the formation of the selvage stitch and the fact that we change carriers when changing from one part of a stocking to another might account for our trouble appearing in some places and not in others.

Let us select a machine, start a set on it, and run it down to a point below the knee narrowings so that we will have a few needles that are not engaged in knitting. We will now stop the machine with the needles down and turn it by hand until the tops of the needles come up to the point where they are just below the sinker throats. As we move the needles upward from this point we must observe the relation between the last needle in the knitting field and the yarn that extends from the selvage stitch to the outside sinker. The needles must come up far enough behind the sinker throats for the last needle in the knitting field to come up in back of this yarn. If this needle comes up in front of this yarn the selvage stitch will be dropped. The needles must not come up so far behind the sinker throats that the first needle outside of the knitting field comes up in back of the yarn that extends from the sinker to the carrier tube as this will add an extra loop to the fabric and cause the second type of bad selvage.

As previously stated, the change of carriers in going from one part of the stocking to another has some effect on this due to the change in the angle of the small length of yarn from the needle to the carrier tube.

The position of the needles in relation to the sinker throats can be changed by advancing or retarding the presser cams and this adjustment should be made so that no stitches will be dropped while the bottom or No. 1 carrier is in the knitting field and so that no extra loops will be added when the top or No. 7 carrier is in use.

The selvage of the full-fashioned stocking is a succession of stitches forming a chain. To construct this chain it is necessary to form the first stitch and herein lies the difficulty with the selvage in the welt.

In the operation of starting a set we run a loose course and clip the starting end on the right side of the head, insert the welt bars, turn the needles down slightly, and engage the loops in the welt hooks. It is difficult for the end welt hooks to engage the yarn between the end needles and the end sinkers because the yarn on the right end is clipped and is loose while the yarn on the left end extends up to the carrier tube. If the yarn outside of the end needle is not engaged

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with a welt hook there is nothing holding the first stitch of the chain in a manner that will permit the second one to be pulled through it. This theory can be proved by using a pick-up and placing the yarn outside of the end needle on a welt hook, and if the machine is properly adjusted it will produce a good selvage from this point on through the welt.

The remedy for this trouble, as we see it, is to keep all the end welt hooks in the bars pliered straight and to adjust the welt bar bridges to a position that will permit the hooks to engage the yarn between the end needles and the end sinkers.

This is as far as we have gone with this problem and we would appreciate any criticisms or suggestions.

CONTRIBUTOR NO. 6691

Tight and Loose Lines

The causes of this defect in full-fashioned hose.

EDITOR COTTON:

One of the common defects in a full-fashioned hosiery mill is tight and loose lines in the fabric, sometimes called washboard effects, or 3-carrier streaks. These may be eliminated by constant vigilance.

One of the primary causes of this defect is uneven tension on the yarn during the knitting process. This is often caused by having the cones of uneven size that are feeding the same head on 3-carrier work. Maybe the throwster has wound the yarn on the cones unevenly, or has wound it tighter on some cones than on others, and as the yarn is unwound from the cones, they become unequal in size. The throwster should be notified promptly of this condition because he can then correct it.

Another cause of tight and loose lines is that the wicks in the moistening boxes become worn. These should be replaced. Worn snappers and notches in the carriers will also cause the lines to appear in the fabric. The old type snappers may be replaced with porcelain eye ones, which have proved beneficial in our work. They last a long time. When the carrier tubes are worn or notched, they should be changed.

If the slur cock has been knocked over to one side it will cause tight and loose lines in the hose. It may be loose on the right and comparatively tight on the left, then it will cause a tight line going to the left and a loose line when moving to the right.

Horizontal lines in the fabric are caused by the needles being rough or pitted, having a crooked back, or being out of alignment. These points should be noted and remedied before much bad fabric has been run.

Rough sinkers or new sinkers in an old head, and a worn verge plate will give this same trouble. All of this may be fixed by the machine fixer.

Another cause is worn striking jacks. When replacing these, all new ones should be put in at one time, the old ones being saved to use in heads where all new ones are not put in. Bent jacks and tight jacks will give trouble also.

These are some of the points that will cause faulty fabric, but if the machine fixer watches his job carefully, he will be able to eliminate most of them as soon as they appear, and some of them before they bob up.

CONTRIBUTOR NO. 6706

Tinted Silk

If you have another system for mis-matching we will be glad to hear from you . . . . . .

EDITOR COTTON:

There always has been a good bit of discussion among full-fashioned men concerning the system for mis-matching in the manufacture of full-fashioned hose. Perhaps I have a simple "kink" that will help some of them reduce the number of mis-matches in their plants. We have every lot of silk tinted a different shade. In this manner we can run one lot of silk out completely on the footers without having two batches running with the chance of getting them mixed.

Then we are very careful to see that the legs and feet are matched with the same shade tint of silk, which means that the silk has all come from the same lot.

We don't have many mis-matches using this system and I see no reason why other mills could not use it to advantage.

Of course it is necessary to keep the fabric uniform on the leggers and the footers. The tension must be correct on them both and the size must be right too, or the best systems of mis-matching will not help much.

All of the heads should be watched carefully to see that they are producing fabric that is uniform.

CONTRIBUTOR NO. 6703

Same Needle Bent

The cause—and how it may be remedied.

EDITOR COTTON:

Sometimes a fixer will work on a machine that is bending the same needle every time, and it may require two or three trips to that machine before he recognizes that it is the same needle being damaged. There are several machine defects that will cause this trouble, and if the fixer will inspect each of them when he has a machine giving such trouble, he may be able to eliminate it.

The sinker ring may be out of line so that the sinkers go in at an angle, and when the needle comes down it will hook over the sinker. Of course, in this instance the ring should be lined up so that this will not happen.

Here I might say that no matter what the trouble is that causes the needle to be bent, the machine fixer will save himself time and the company money by settling down and fixing that machine while he is there. Just to inspect it and hope that it will operate properly from then on is a sign of poor fixing, and to trust that the man on the next shift will

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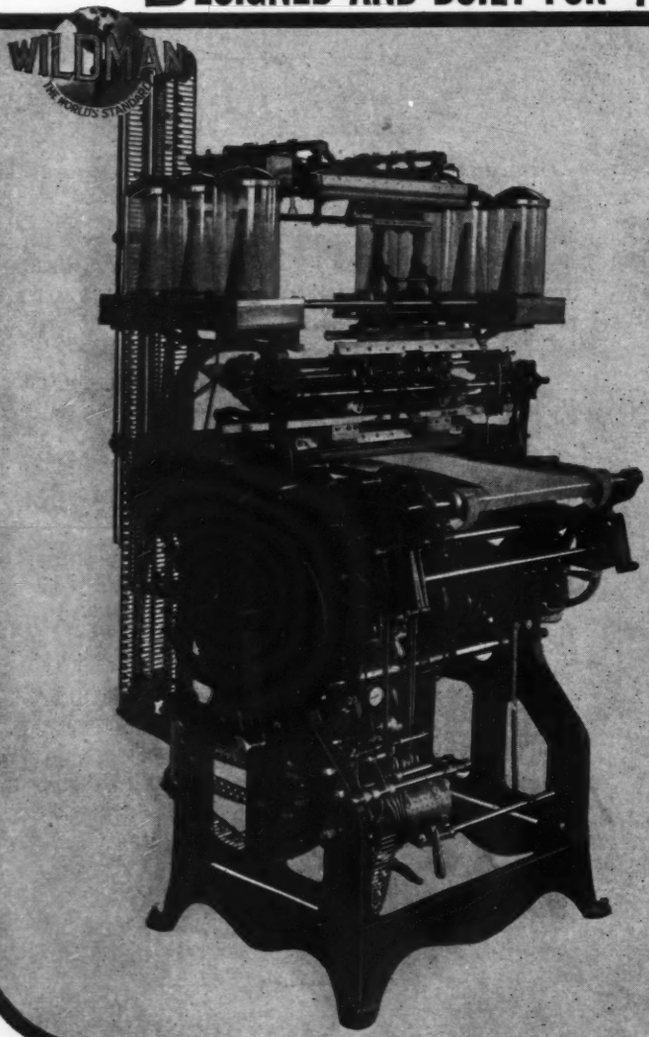

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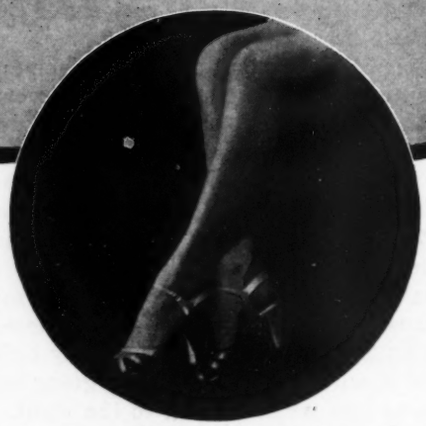

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catch it is worse than no fixing at all.

It may be that there is only one bad sinker and this is bending the needle. The machine may run for an hour or for several hours before it bends the needle again, but if that bad sinker is there, you may be certain that trouble is going to pop up again before long.

When the cylinder wall is bad, broken, bent, or is soft, the same needle may be bent. If the wall is weak then the needle will be injured during the sidewise motion.

Another cause of bent needles is the machine loading up. Some of the needles will be bent out of line and if the fixer does not straighten them before the machine is started up they will catch the yarn and bend other needles. A fixer does not have time to straighten needles all day long, so he had better ascertain the cause promptly, fix the machine, and move on to the next one.

In my opinion a machine should never bend the same needle but twice. The first time the fixer may not catch the trouble because it may not be so evident, but on the second time he should have remembered that the same needle was bent, and then he should remedy the trouble.

I once had a machine on my job that was old. It had a tendency to bend one of the dial needles when the presser occasionally came in and hit the needle.

When the mill won't give the fixer enough supplies to fix the machines properly, it is not his fault that these things occur more regularly than on a new job. The latch opener could bend a needle the same way as the presser did. Sometime there is trouble with the lead-off needle bending where the lead-off is ground off on the butt and is lower. Being lower than the other needles it will catch on the latch opener. This may be remedied by putting in a new needle that is not ground so much. This should not be done on new machines, but on old machines it has to be done because the adjustments are not fine enough to help much.

Bending or rolling the heads over means that the dial is out of time; it is either too fast or too slow. If the latch is bent then the trouble is in the gap closer. The fixer should examine it to see that there are no nicks in it, or that it is closing and opening all of the way.

I believe if a fixer will examine these points when he has a machine bending needles, especially the same needle all of time, then he will eliminate much of his trouble.

CONTRIBUTOR No. 6710

Keep the Mill Clean

Uses high grade of yarn to keep his cylinders from clogging with lint so often . . . . . .

EDITOR COTTON:

A point often overlooked in the running of a seamless hosiery mill is cleanliness, both on the machines and in the building. If the machines are in a dirty condition they will have an effect on the fabric produced by allowing lint to be knitted into the hose, by having the machine parts covered so that loose parts cannot be seen by the fixer and repaired in time, and by having a bad moral effect on the operatives. They can work much better in a clean place and they will try to produce a better grade of goods if the place in which they work is kept neat.

Air Pipe Line Under Pressure

In our mill we have an air pressure pipe line with connections for the hose to be attached. We keep three of these hoses on hand so that there will be no waiting around on the part of the operatives who wish to clean their sections. As a rule only two of them are in use at a time.

The machines are blown off once a day on each shift. On some of the machines the knitters have time to do this work, but on the Banner machines the fixers blow off because the knitters do not have time to run both jobs. However, the knitters do use waste to clean their machines as they need it.

We do not have a regular system for cleaning out the cylinders, but this job is done as the occasion demands. In some mills a certain day is set aside for this particular job. We do try to run a high grade of yarn so that the machines and cylinders won't get so dirty.

On our K Models we run pure silk and we have found that the cylinders do not have to be cleaned but about once in two years.

CONTRIBUTOR No. 6709

Systems for Press-Offs

EDITOR COTTON:

I have noticed that you have carried several systems of handling full-fashioned press-offs in mills that must be somewhat larger than ours, and I would like to submit our method, a relatively small plant, and perhaps some of your other readers from small plants will have other ideas to supplement mine.

We do not have a regular system for re-topping the press-offs, but we go around and make bundles of a dozen from those that have been pressed-off by the various knitters. We do not immediately take them back to the knitter that makes the press-offs, but we do keep a record of those made on a ticket, marking the name of the knitter doing the work. Of course, if the knitter makes a press-off of the whole set, these are re-topped at that time. But where only one or a few are pressed-off these are bundled. If we waited until the knitter making the press-offs had a bundle of his own, it might be a long time and we would not want the hose to lie around until they had accumulated into a bunch for each knitter.

The bundles as made up from all of the knitters are rotated among them, each taking a turn at re-topping a whole set.

In a larger mill it might pay to have a re-topping stand with someone paid to do this work, but in a small plant the extra expense would not be justified.

CONTRIBUTOR No. 6704

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Fixing Model "K" Machines

Auxiliary Side Cams; Lower Jack Cam

THIS is the fifth of a series of practical discussions on the operation and adjustment of the Model K knitting machine, applicable primarily to the plain machines, but containing much pertaining to the spiral type of equipment. The first installment appeared in the April issue, the second in the June issue, the third in the July issue, and the fourth in the August issue. Yarn arrangements, make-up trouble, the cross-bar assembly, transfer trouble, the cylinder, and stitch cams have been discussed. This article covers the auxiliary side cams, the lower jack cams, and bevel gears. The next article will be a study of the auxiliary racking pawl, auxiliary cam bracket, etc. . . . . .

TWO AUXILIARY side cams (Catalog No. 7720 left, No. 7721 right), and lower jack cam No. 7930 provide the means for controlling the cylinder jacks on a plain Model K. These cams are not particularly troublesome, in fact if we stop to consider how much service they give during the daily grind, we will be forced to admit that the percentage of troublesome cams is small indeed. Most of the trouble connected directly with the three cams mentioned is simply cases of broken jack butts, but very often the trouble becomes a real brain teaser; occasionally other indirect troubles develop.

As we cannot see the jack butts travel up and down through the races in the cam ring, we must depend first on imagination and then we must be able to read the little telltale signs usually left by mechanical defects or caused by ordinary wear and tear. Now what do I mean by telltale signs—simply this: careful examination of broken jacks may tell the fixer whether the butts are being broken while the machine is running forward or backward, whether the butts are being sheared off from the top towards the bottom, or vice versa, etc.

The usual fixing procedure in cases of broken jacks runs about like this—the knitter stops a machine for make-up or transfer trouble, the fixer checks his needles and dial jacks and finds them okay; next he checks the cylinder jacks and finds several broken, so he replaces the broken jacks and starts the machine up again. Yes, sir, that was easy; it's fixed (or is it?). Several hours later: Well, well, the same machine is stopped again, more hem trouble, several more broken jacks, and the fixer goes through the same procedure again. The day passes and there is no further trouble, but the next day it starts all over again. So, much against his will, he tears the machine down and finds the lower jack cam and the auxiliary side cams rather rough; then he does a good polishing job and re-assembles the machine, starting it. Before he has time to get the machine back in size there are more broken jacks; this is hard to take, but such is the life of a fixer—so down comes the machine once more and out come the jack cams. This time he really looks for trouble and finds the lower jack cam cracked from its upper surface into one of the screw holes. He replaces the bad jack cam with a new one and starts the old "K" up again. This time it runs without further trouble because the machine is fixed sure enough.

Now why didn't this fixer find the real trouble in the first place? Well, to begin with, he was simply replacing broken jacks, trying to keep the machine running; he was not thinking in terms of *why should this machine break jack butts?* Then when he took the machine down the first time and found the jack cam and auxiliary side cams rough, he *guessed* that the rough places were breaking the jack butts; he guessed wrong and made two jobs out of one. The machine fixer who gets the best results is one who prevents trouble by going over jack cams, auxiliary side cams, etc., at regular intervals, re-polishing or replacing any that are not in good condition.

Spiral K Jack Cams

Spiral Ks use the same type of auxiliary side cams as the plain K, but they do not have a lower jack cam; the spiral jack raising cam answers this purpose. This means less wear and tear on the auxiliary side cams and cylinder jacks because the cylinder jacks are inactive the greater part of the time it takes to produce one stocking. Just the opposite is true on the plain K because here the cylinder jacks are constantly in use, therefore jack cams on plain K machines require more attention than similar cams on Spiral K machines. It is also possible to remove both auxiliary side cams on a spiral machine without dismantling the complete upper deck and this alone saves the fixer much time and labor when he has cylinder jack troubles on the Spiral K machine.

At some future time the writer will attempt to give some useful and detailed information about spiral attachments used on Model K, HH and B-5 Scott & Williams machines.

The Gear Ring

Of the various troubles that are caused directly or indirectly by the gear ring, none is more disconcerting to the machine fixer than to have a spline come loose. They always manage to come loose when the fixer is head over heels in work and it is a nice little job to get a loose spline back in place. On older machines two screws were used to hold the spline in place, later three screws were used. The latter method gives less trouble than the former.

My old friend, Sam, was having a siege of loose splines on some of his ancient Ks and he now feels that he has found a permanent cure for this trouble. We will pass his idea on to the reader for better or worse. It happened like this: Sam was having a lot of trouble keeping his machines in size; being an old-timer at the fixing game he soon found that his cylinders were not raising and falling as they should.

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Lack of oil caused the cylinder to stick to the gear ring tube; some were dry or gummed up, others actually were rusted. So Sam and his helper proceeded to really oil the inner cylinder surface and the gear ring tube with a light penetrating oil, an oil made to cut grime and rust. The cylinders responded to the treatment immediately and the sizing trouble disappeared, but right on the heels of the sizing trouble came a siege of loose splines.

Contends Oiling Created Trouble

Sam contends that the oiling brought it on because when the cylinders began to work freely on the tube, the whole load went on the spline (where it should be). Some of the spline screws no doubt were loose and the oil seeping into the spline screw holes simply made things go from bad to worse. Sam went after the first few machines in the usual way by putting in new screws and adding a screw for safety, but he argued that sooner or later they would come loose again; he wanted to fix one so it would positively stay put. With a gear ring in hand he hunted up the boss and asked his permission to have the spline *spot welded to the tube,* in addition to the new screws and the extra screw he had put in. The boss allowed it was a new wrinkle on him but said for him to go ahead and try it. The boss also asked him what he would do if the spline happened to wear out, whereupon Sam said that the worst that could happen would be that he would chip it off and that he believed that welding the spline to the tube would prevent it from wearing out prematurely.

Sam explained that he was of this opinion because he had noticed that in every case where a spline was loose it was also worn, and that the reciprocating action of the cylinder on the spline causes more wear on a loose spline than it does on one that is tight and it would take a mighty long time for the up and down movement of the cylinder to wear out a spline if it were oiled regularly.

Spot welding splines prevents them from coming loose and thus helps to prevent unnecessary wear. Therefore, brother fixer, if you are having trouble with loose splines, try Sam's idea—and drop the editor a line—your comments *or* criticisms will be welcome.

The Bevel Gear

Of course, there are other troubles connected with the gear ring besides spline trouble, and most of them are caused by the gear ring becoming sufficiently worn to give it side play in the bed. Very often we find cases of broken dial jacks, make-up and transfer trouble, etc., on old machines; these troubles are supposed to be caused by dials being out of center. Careful tests may show that dials are actually out of center but when we dig down to the root of the trouble we find a badly worn gear ring caused the dial to be out of center.

Possibly a case of a badly worn gear ring could be described as a cylinder being out of center with the dial because the dial setting does not change, but the gear ring does become worn and so does the bed.

When we think in terms of broken dial jacks, hem make up and transfer troubles, etc., we must not overlook the bevel gear (catalog part No. 5555) and the vertical drive shaft assembly. These parts supply the means of driving the gear ring, cylinder and dial, and therefore much depends on the proper meshing of the teeth in the various gears and pinions. Side play in the bevel gear should be reduced to a minimum as excessive side play will cause the gear ring to retard or to advance when the bevel gear moves from right to left, thus changing the relative positions between cylinder and dial. It requires but a few minutes to check and set a bevel gear properly and it can be done as follows:

First note the position of the main drive shaft and see that it is kept to the right; next, loosen the bevel gear set screw and move the bevel gear to the left as far as it will go without binding against the gear ring; then tighten the bevel gear set screw securely. Be sure that the bevel gear moves on the main shaft, and don't move the main shaft to the left. Next, loosen the auxiliary racking pawl lever cam (No. 6274) and move it to the right flush against the machine frame and tighten the cam screws securely. That's all there is to it and you can bet your last dime that the bevel gear will stay put. Believe it or not, I have worked with machine fixers who claimed that side play in a bevel would not affect the relationship between cylinder and dial one way or the other. They, of course, have a right to their own opinion, but I differ with them. Friend reader, what is your opinion?

Avoid All Lost Motion in Gears

Lost motion between the bevel gear bevel pinion and the vertical drive shaft bottom pinion should also be avoided. Lost motion or improper meshing of the teeth at this point can be overcome by lowering the vertical drive shaft bottom pinion or by placing a shim between the bevel gear and the bevel pinion. The proper procedure to follow will be determined by the relative positions of the two pinions in question. On some machines it is possible to overcome improper meshing of the vertical drive shaft lower pinion and the bevel pinion by moving the vertical drive shaft bracket to the left.

One thing is certain, anything the fixer can do to secure proper meshing of any or all pinions and gears which are used to drive the dial and cylinder, will help to reduce and prevent make-up and transfer troubles because it will keep the cylinder and dial working in better harmony.

Back in the old days the fixer had more trouble trying to keep the various gears and pinions which drive the dial properly meshed. All of the pinions were plain cut and many are probably still in use. A few years ago, however, the machine builders began to equip all HH and Model K machines with spiral cut pinions all the way through from the dial shaft pinion on down to the bevel gear bevel pinion.

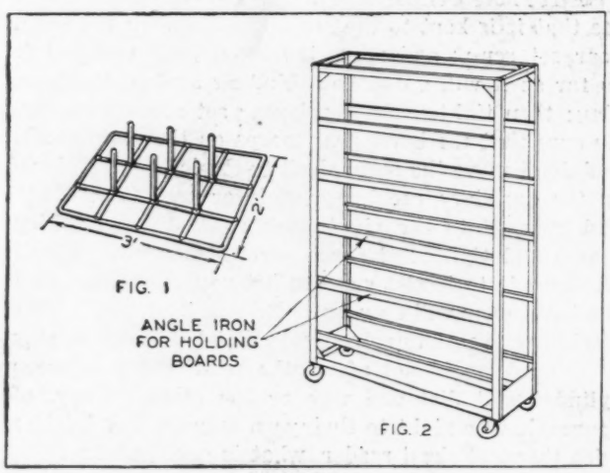
So, my thanks to the builder for making a good ladies' hose machine and for making many worthy improvements.

MATTHEW K. MITCHELL

Method of Handling Yarn

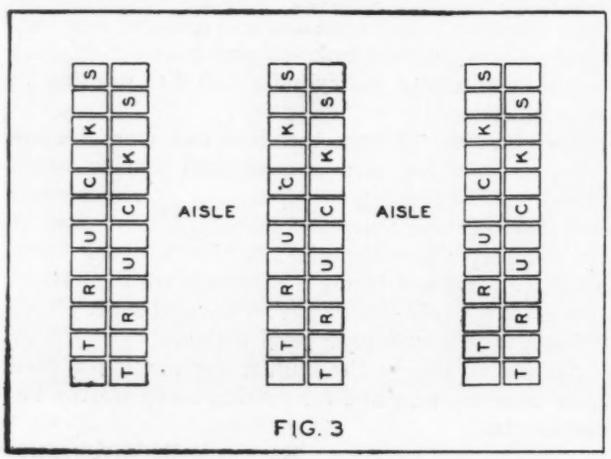
EDITOR COTTON:

While visiting a southern hosiery mill recently, I was much impressed with the method of handling the yarn at this plant. The yarn was handled less and with less effort than with any other system I have ever seen. I think that most of us will agree that the less the yarn is handled the better it will run on the machines and the less are the chances for making waste. As yarn is the largest single item in the expense account of a hosiery mill, any saving of this material is worth consideration.



The cases are unloaded at the receiving room, which adjoins the knitting department. After being weighed and checked, the cones are placed on pin boards (Fig. 1) which hold 6 cones; these boards are about two feet wide and about 3 feet long; they are made of galvanized metal and electrically welded. The paper wrappings are left on the cones to help retain the natural moisture in the yarn and to prevent the cones from getting dirty. As the pin boards are filled they are placed in skeleton trucks (Fig. 2) which are provided with brackets for holding them.

These trucks hold 5 boards or 30 cones. When a case of yarn is opened—say 180 cones in the case—6 of these trucks and the necessary number of pin boards required (30) are brought to the fore. As the trucks are loaded a tag is tied on them showing the case number, the counts and kind of yarn, the name of the firm from whom it was purchased, and other information necessary to identify and keep track of them. Then they are rolled to the storage space allotted to them where they remain until they are needed. In placing the trucks on the storage floor, they are so lined up that any one can be reached and removed without disturbing the others. Fig. 3 shows the arrangement.

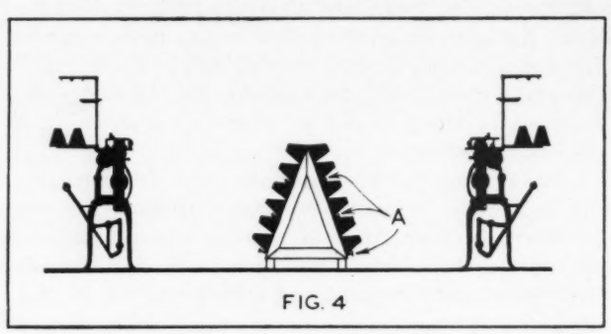


Of course the aisles take up a lot of storage space but the sacrifice of space is made up in convenience and time saved in reaching any kind of yarn wanted, in a hurry. Otherwise, the chances are that the type yarn desired would be on the last truck in the farthest corner.

The yarn man trucks the different kinds of cones to the knitting room and places the boards on wooden frames built for that purpose. These frames are in each work aisle—the lines of machines being spaced far enough apart to permit it. See Fig. 4. When the yarn man sees a pin board on these frames is empty, it is his duty to replace it with a full one of the same count and kind.

The wooden frames, as can be observed from the diagram, are simple in design and inexpensive to construct. The mill carpenter made the one shown in the illustration. The boards are kept from sliding off by 10-penny nails driven into the supports about half way, as shown at A in Fig. 4. The frames are made long enough to hold a day's supply of yarn.

It is readily apparent that by this method the cones are handled but twice—except when the wrappers are removed—when they are taken from the case and put on the pin boards, and when the knitter or ribber tender puts them on the rack stand. To my way of thinking, this is much better than packing them in bins. I have seen cones of yarn that came from the bottom of the bin, they had been lying there for weeks, with creases and impressions caused by the weight of the cones on top so pronounced that they would not unwind without breaking. Sometimes mice get into the bins and cut the yarn, but with the yarn stored on skeleton trucks this is not likely.



The main idea of the wide aisle shown in the layout (Fig. 4) is to accommodate tables, stools, etc., for the girls who do the topping. The yarn racks or frames were an afterthought; they occupy the space left; the toppers and the tables require less than a fourth of the floor area of the aisle.

CONTRIBUTOR NO. 6679

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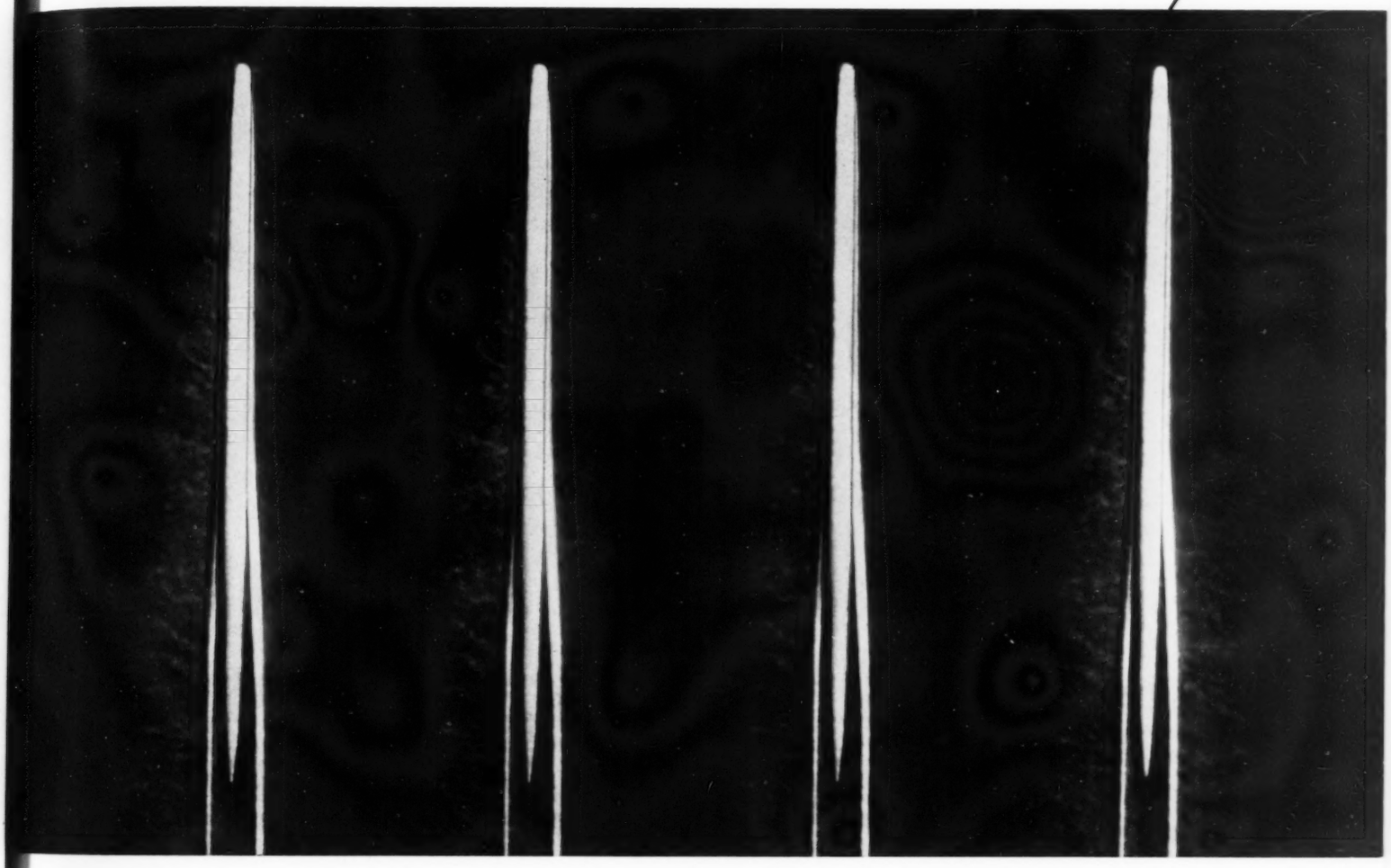

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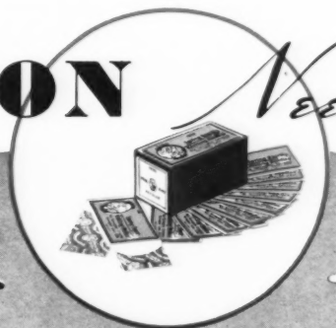

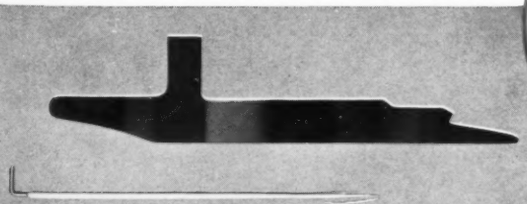

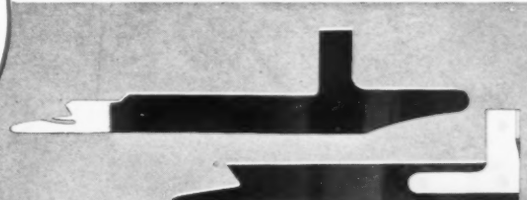

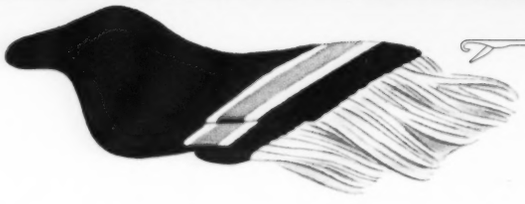

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THE KNIT GOODS MARKETS . .

New Wage Rates in Northern Full-Fashioned Plants Raise Hosiery Prices. Drastic Decline in Raw Cotton Bringing About Price Adjustments in Knit Goods. Spring Underwear Prices for 1938 May Be Delayed.

Philadelphia, August 16, 1937

ALTHOUGH full-fashioned hosiery mills in this district booked a larger volume of business in July than seasonally expected, due to the naming of higher prices effective August 1 through wage increases of about 10 per cent, most knit goods manufacturers have been experiencing a seasonal lull in new orders. At the same time much lower prices for cotton and cotton yarns have delayed coverage in cotton hosiery and most lines of underwear until the trade gets a better idea as to what price level cotton will stabilize and what prices for goods will then be obtainable. This factor has been an important one in causing underwear mills to delay naming spring 1938 prices for several weeks and another has been until it became definite what if any legislation is to come out of this session of Congress regarding hours and wages. Manufacturers want to know what effect this will have before naming forward delivery prices. [Editor's Note: Legislative action on this bill has now been postponed until the next session of Congress.]

Full-Fashioned Prices Strong

While some lines of hosiery have been reduced by manufacturers on account of the drop in cotton and yarns, the reverse has been seen in full-fashioned where manufacturers in mills here that have just signed a new agreement with the hosiery union have higher costs of 15 cents to 22 cents a dozen so that they announced in many instances price increases of 25 cents per dozen beginning August 1 to offset this. To beat the change, many buyers placed substantial orders for delivery during July so that mills in Philadelphia have been active on such work even though hosiery jobbers and other large buyers were not moving goods to retail channels at a very lively rate.

July was not a good month for hosiery wholesalers in this city. In several instances sales for the first time in several years were not up to the total for the corresponding month of the previous year. Seasonally July is not a good month for new hosiery contracts but this does not explain why volume fell under that of July 1936; jobbers attribute it partly to the widespread strike wave in many sections which disturbed consumer confidence, but at the same time they say demand has been slow on account of weakness in cotton and cotton yarns. Hosiery prices, except for full-fashioned, have not displayed much firmness and in some lines are lower. One jobber stated that on an anklet line prices quoted now for 1938 spring shipments are down to prices paid for the same number a year ago.

This line was sold a year ago for $1.00 a dozen; later it was advanced to $1.10 and recently touched a peak of $1.15 for the spring season of next year. Now the price has been revised back to $1.00 and jobbers say the same trend has been apparent in some other seamless hosiery numbers. Although most of the manufacturers of full-fashioned in this area enjoyed a good volume in the last four weeks, partly because of the advance in prices, jobbers say their volume of new business in this period was only fair. One large firm which has been carrying a certain line made by a Pennsylvania mill for many years was quoted 25 cents per dozen more beginning the first of the present month. The jobber said he could not pay the advance and that he has been able to obtain a similar hose at the old price from a southern knitter. "The hosiery we obtain from the new source was every bit as good as the former line and while we dislike to discontinue our long association with the local mill, we could not get our customers to meet the advance when they were able to get hose from other sections at the old list," this jobber said.

Courtesy Du Pont Style News Service

Soft but firm rayon jersey with admirable draping qualities . . . .

Mills Claim No Profits

Yet manufacturers in this vicinity say that a 25-cents per dozen increase does no more than offset their higher wage rate. The National Association of Hosiery Manufacturers recently stated in one of its bulletins that the higher wage rates of the North, beginning August 1 would cause increases in costs to mills of 15 to 22 cents per dozen and many of the mills in this section say their increases will be the larger amount. Several go further and say that further increases in hosiery prices will have to be made early in the fall because relatively few of the mills in this district are making money. In proof of this assertion, an official of one of the full-fashioned hosiery associations stated that he could name a half a dozen mills in the Philadelphia area that want to sell out and will take any reasonable offer and he asks if these manufacturers are making money, why don't they get offers.

In the primary hosiery market, gradually increasing activity is reported by most mill representatives and with the exception of low-end fancy half-hose, in which stocks continue burdensome, all divisions are considered to be in relatively good shape. The market as a whole is on the brink of a big fall season, which will develop gradually and healthily, it is felt. Volume on full-fashioned stockings for fall is gradually increasing, although introduction of the new fall colors has not stimulated sales to the extent that was anticipated. Most buyers are proceeding cautiously but this is offset by the refusal of many mills to sell for late fall deliveries because of their expectation that moderately higher full-

This cool frock is of rayon jersey, which in its firm yet soft hand, is ideal for the favored draped models . . .

Courtesy Du Pont Style News Service

fashioned prices will develop in September or October. On this point, buyers as a class, are skeptical of the industry's ability to hold any appreciable advance from current levels.

One of the most interesting phases of the full-fashioned market is the reported scarcity of gray goods, a considerable portion of which is regarded as speculative on the part of certain large buyers, who feel that higher prices are coming in the fall. Several manufacturers in this section having finishing plants of their own, have been busy on gray goods orders, which it is understood are shipped to the South for finishing and then sent back to the North for sale. In view of the recent unionization of commercial hosiery buyers and finishers and the resultant increase in wages in those plants, it is reported that some of the hosiery made in Pennsylvania is being finished in the South and shipped back at lower prices than the hosiery can be finished here.

Infant Goods Quiet

Although some large contracts on low-end infants' and children's anklets and half socks for next spring have been placed, the general market in these lines has been rather quiet. Large contracts on the low-ends were placed in May by some of the large chain store organizations. It is reported that understandings on higher priced goods have been reached by some of these mills with large operators in the chain field and more of the same sort of arrangements are expected to be completed shortly. Competition is very keen on cheaper numbers, especially 10-cent goods, in view of the decline in the yarn market, which, however, is offset to a certain extent by uncertainty regarding labor costs. A mill which sold low-end carded anklets at 65-cents a dozen last year, is reported to be offering combed goods for next spring at 67½ cents. Increased production is a factor in this situation and this keen competition in such numbers is expected for some weeks ahead. On the other hand, certain types of anklets previously available at prices which made it possible for them to go over the counter at 10 cents are no longer obtainable. One mill, for instance, which has sold Fidelity-top anklets within the 10-cent range for several years is not offering such a number in this price range for next spring.

Fancy half-hose is in a somewhat improved position, although still quiet; medium-priced numbers continue in better shape than low-end goods. Chain buyers are still perplexed by uncertainties in the price situation and jobbers who usually enter the New York market in numbers at this time of the year have been slow to display interest this year. Mills working on fall lines of children's hose are busy, most of them working actively to get out deliveries on time. Improvement in the styling of better quality infants' socks and children's novelty hose in general, has been noted. The refinement of colors and patterns is striking. Manufacturers are optimistic regarding the outlook for black and other colored heels this fall in women's full-length lines, although they admit that these goods are, to a large extent, effected by sectional preferences, with colored heels selling better in other sections than in the East.

Sharp differences of opinion exist among hosiery merchandisers as to the possibilities in over-the-knee stockings with elastic tops now being shown by a number of mills in both full-fashioned and seamless lines. Some of the first stockings of this type offered have been promoted with results described as satisfactory by style-leader stores in New York, which has stimulated interest of buyers elsewhere. Opinion on the subject among experienced hosiery men is that there is a fairly substantial number of women who for one reason or another do not wear knee-length hose and who have continued to wear full-length stockings rolled just about the knee. For this group, the over-the-knee hose with elastic top is a "natural". Manufacturers believe their number is large enough to warrant promotional effort on the new stocking, though they feel buyers should be careful to test out their market before plunging. Others believe that a new-type of semi-staple stocking, destined to take its place alongside the established knee-lengths, has come over the horizon. Skeptics say the over-the-knee stocking is not practical; that unless the garter top is too tight for comfort, almost every movement of the wearer, particularly those involving flexing of the knee, will result in a pulling down of the stocking on the leg and wrinkling.

Knee-Lengths Strong

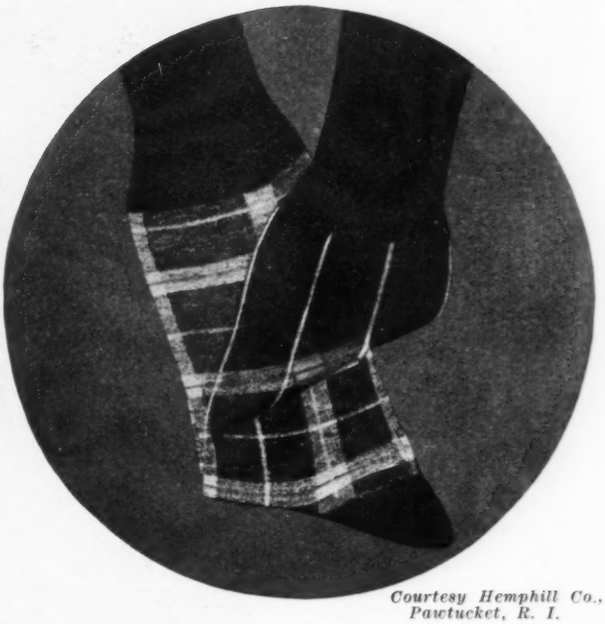
Notwithstanding the fear of some manufacturers that shorter skirts would result in a smaller volume of business for knee-length hosiery, knitters making these lines did an excellent volume of business during the first half of the year. During this time, knee-length hosiery shipments increased 54.4 per cent over the same period in 1936, but in this connection some in the trade assert that the effects of the shorter skirt vogue were not apparent in production figures for the first six months of the year. Several feel that in view of the shorter skirts being worn and the development of elastic-top, full-length hosiery, the peak in knee-lengths was probably struck in this period, until the style changes again. However, it is pointed out by others that for some consumers, knee-lengths have become a staple, this being especially true with girls of high school age.

Increasing from 55,971,165 dozen pairs in the first half of 1936 to 64,945,317 dozen pairs in the first six months of this year, shipments of hosiery set a fast pace and reached especially high levels in June according to data to the National Association of Hosiery Manufacturers. As already mentioned, knee-length hosiery shipments increased 54.4 per cent, woolen goods 52 per cent, ribbed goods 33.2 per cent and anklets 22.1 per cent. Women's full-fashioned rose 17 per cent and women's seamless 17.6 per cent. The smallest gains were registered by men's half-hose and children"s and infants' goods, each of which went ahead

only 8.5 per cent over the first half of last year.

A minimum wage of $14.00 per week for the seamless hosiery industry under the Walsh-Healey Public Contracts Act, with no geographical differential, has been established by the Secretary of Labor effective on all contracts for Government use awarded on or after August 2. The minimum of $14.00 is for a week of 40 hours or 35 cents per hour arrived either upon a time of piecework basis with a tolerance of not more than five per cent of the workers in any one establishment for learners, handicapped or superannuated workers, who must be paid not less than 28 cents an hour or $11.20 per week. This level of minimum wages was set higher than the majority of manufacturers in the industry had felt advisable.

Import figures on hosiery from the Department of Commerce reports are interesting now in view of the quota agreement arrived at with Japanese exporters through the National Association of Hosiery Manufacturers in an effort to protect the domestic industry. Of late it has been noted that the imports have been falling behind the corresponding period of last year and data for May show further this trend. Imports of all types of hosiery for that month amounted to 116,345 dozens or a drop from the 185,179 dozens in April and the 211,745 dozens of May a year ago. The bulk of hosiery imports are of cotton construction and this is the class of merchandise made so cheaply in Japan. Of the cotton hosiery brought in in May, Japan supplied 76,666 dozen compared with 195,102 dozen a year ago. The National Association finds, however, that imports of cotton hosiery from China are steadily rising, there being no quota agreement for that country, the May figures from it amounting to twice the volume of a year ago.



An unusual pattern is shown here by double exposure photo. Background hose is reverse plaiting; top hose is wrap stripe. Lower part of photo shows effect of combining patterns . . . .

Courtesy Hemphill Co., Pawtucket, R. I.

Drop in Cotton May Change Underwear Buyers' Price Ideas for Next Year, but Higher Overhead a Factor

Underwear manufacturers realize that the largest distribution of their lines goes with the lowest possible prices within the reach of the great mass of the buying public. This spring proved that even nominal increases had an affect upon the consumer buying with a resulting loss in volume. For the next spring season many had therefore made up their minds to keep prices within the old retail price brackets with as little change in quality as possible. While manufacturers are meeting with higher wage demands in many sections of the industry they state that the lower cotton prices now here will help in bringing back some of the old retail price tags for next spring's goods, thought impossible a couple of months ago. While the new prices may show some advances many feel that it still will be possible to merchandise the garments at retail in such brackets as were most popular before the recent increases. But some knitters claim that the list named for spring 1937 will not be possible for 1928 because of increased wages and overhead.

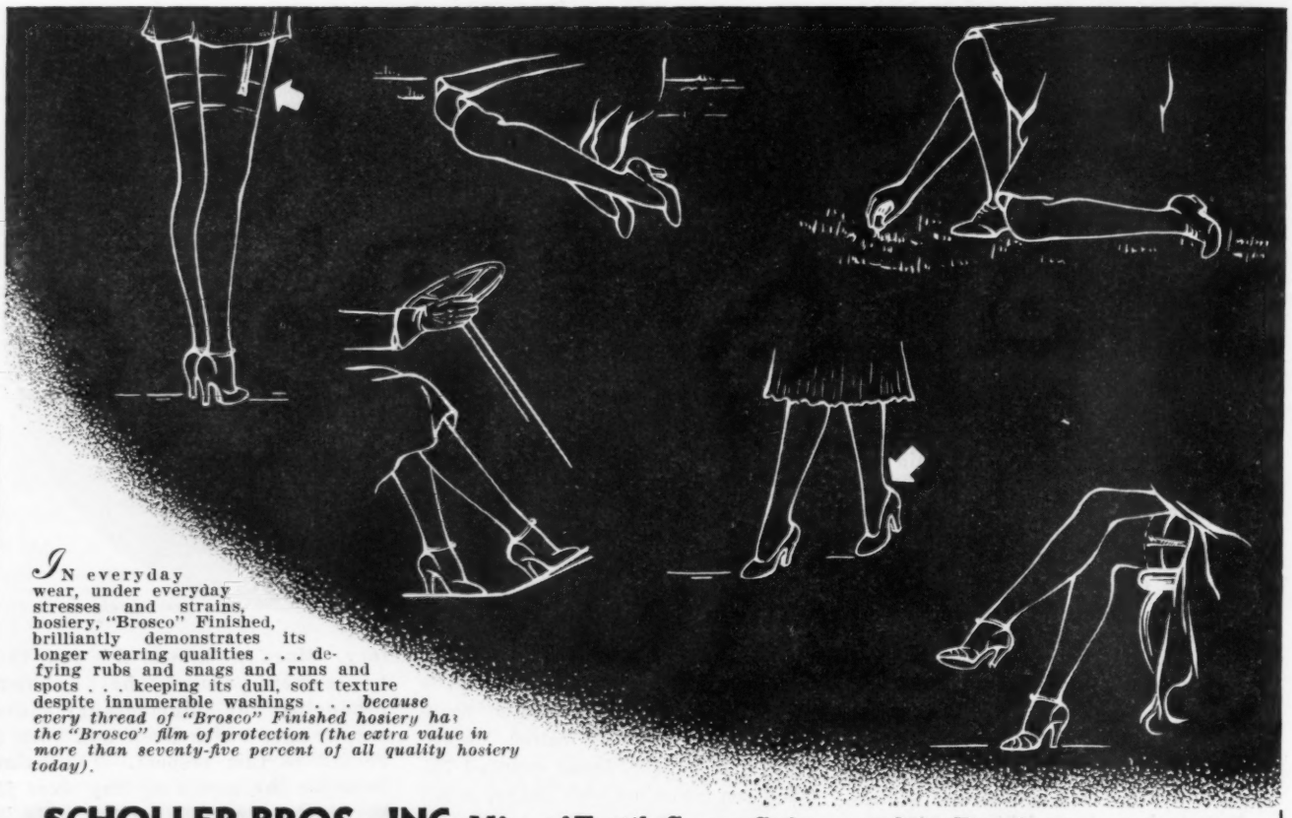
Underwear manufacturers found that the lightweight season is ending far below expectations, with new business having been below normal during the latter part of the season. A year ago, the summer demand for underwear lasted until the beginning of September and there was scarcely any halt between that season and the beginning of the new one for this year. In looking for explanations to account for the difference this year, the most obvious one is that buyers operated heavily a year ago for the spring of this year, most of them taking care of their whole season's requirements in their initial purchases.

The spring trade this year with consumers started slowly and was held back by unfavorable weather. This led to deferred shipments by many of the wholesalers and re-orders naturally were scattered and light. As the season progressed, most of the wholesalers were able to get rid of most of their original commitments but were not open for further merchandise. Manufacturers in the meantime were running at the highest productive rate in their history. Since the first of this year the Government reports have shown production and shipments far above a year ago, which itself had been a record in this respect. The gains even for the month of May were 13 per cent in production by mills in the cotton and wool end of the industry.

Wholesalers Show Interest

Manufacturers, however, are encouraged by the interest already being shown by some of the wholesalers for another spring season. Manufacturers have temporarily had to delay making quotations for that season until they had more definite knowledge on the cotton crop, also whether any new Federal legislation would be set up affecting hours and wages. They found in the meantime that buyers are showing they will be ready to operate as soon as the mills find they can make prices safely, much of this eagerness to buy coming from parts of the country where the crop prospects are so favorable. The latter merchants report that they are doing an excellent fall business and the outlook for next spring is better than usual. Most buyers, particularly those in the wholesale trade, are accepting manufacturers' plans for the next spring opening early in September. The opening was delayed a month or more this year in view of the excitement in the cotton market, when the Government on August 9 estimated that the crop would be 15,593,000 bales or one of the largest in recent years.

Understandings on quantities of next spring underwear, such as the staple men's numbers, have already been reached between some of the larger operators and the mills that they regularly do business with. These buyers



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have to make their plans ahead considerably earlier than the average buyer and it is taken for granted that they have been able to reach acceptable agreement as to the quantities and also as to prices in a general way. Provided that the new prices are not so different as to disturb old and fixed resale ranges, it is understandable that buyers of this kind and a few mills have been able to get together on some important quantities of lightweight numbers. Scattered reports are heard of quotations for next season on numbers like the men's athletic shorts. One number of the kind in a full combed is being quoted at $1.60 a dozen for a garment of average weight. Similarly, it is known that mixed combed and carded numbers are being shown at a difference of about 10 cents compared with the full combed.

In the last two weeks there have been prices quoted on men's cotton ribbed union suits for the next season with advances of 12½ cents to as much as 25 cents a dozen over the opening prices this season. Manufacturers are pointing out that despite the decline in cotton yarns, comparable with last year's opening, the increase in cost of other kinds, including taxes and wages, make necessary an advance over last year's opening. Nominal advances on some of its fall numbers in children's goods have been announced recently by one important mill located in Pennsylvania, where industry of all kinds has to conform to a new law making a 44-hour week effective September 1.

"That is the Question"

Reports in the market that prices for the next season would probably be about the same as for the opening this spring, are coming largely from the buyers' side. Some mills may be able to come close to approximating that view as shown by prices already heard. On the other hand, such prices at the present time are out of question for some manufacturers, including a number of the larger ones. Those mills, such as a number in New York, say they have to bear the brunt of the CIO attack and sign agreements of wage increases of 10 per cent on top of previous voluntary advances of another 10 per cent and also have to agree to a $14.00-minimum per week, so that they necessarily are facing higher costs of this kind than a year ago. Even with cotton and yarns lower than last year, they state costs in wages more than offset this advantage.

If the market should open for another spring season approximately near that of last year, so that old fixed price brackets that wholesalers prefer were kept, what would be the attitude of buyers in operating ahead? This is the question now confronting the market. A number feel that prices near those of a year ago, meaning 25 cents, 35 cents and similar retail figures on staple men's goods, should result in buyers placing business at once. Some buyers have, in fact, indicated they would operate under those conditions.

When next spring selling actually gets under way, buyers are going to find that a number of mills offer a more varied list of styles than has been the case in recent years. There will be more brief shorts in both mens and boys' goods, with the boys' styles of this kind especially emphasized. The large business in the boys' knit sport shorts this year will lead to a larger showing next season. There will also be a real innovation in men's knit shorts, both of the brief style and regular lengths in the use of printed patterns in color on these garments. In the woven broadcloth shorts, it is probable styles in men's and boys' knit suits, both flat and ribbed, and in the popular styles with the two-button athletic garment, will be prominent again. In men's athletic shirts, some manufacturers are going to make an effort to stress the flat-knit construction, believing that with proper effort, this style can be brought back to its former large popularity.

A price stabilizing development came early this month when the P. H. Hanes Knitting Company put back on sale for a limited amount of business, their fall underwear for delivery in the months of November and December. The Hanes branded numbers were offered at the same prices at which the line was withdrawn months ago. This move came just at the time the Government crop report was published and raw cotton was staging a drastic decline and indicated the well-considered view of this company on the cost of merchandise for the rest of the year. It had the effect of steadying prices on the important heavy-weight cotton business which takes such a large production of the mills.

The late fall needs of special customers, like the mail order houses and chains, have to be figured upon about this time of the year by underwear manufacturers. Mail order houses get out "January flyers" each year and some of the chains likewise have been establishing special promotions at the same time. These large users have to get an early line from regular sources as to delivery possibilities and prices for that period.

Fall Goods Expected to Be Good

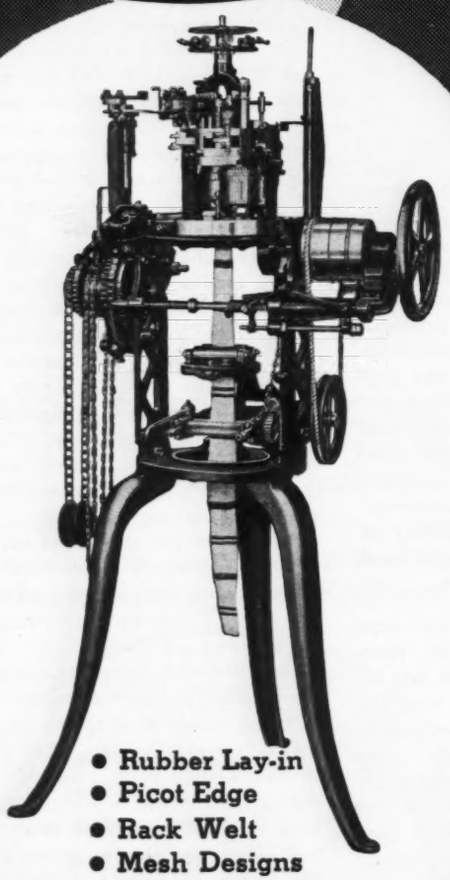
While the cotton ribbed mills are universally busy, manufacturing and shipping goods against early fall needs of customers, they realize that the next thing will be the need of pricing merchandise of the same kind for later delivery and for special promotions noted previously. There is a feeling among large selling offices that the late fall needs of their trade are going to be good, despite the extra large buying when lines were first opened. The impression is general a large quantity of fall merchandise of all kinds will be absorbed provided prices are favorable. New prices for late fall are going to show some advance over the late opening. The large mills that have so far announced a price for November deliveries on men's cotton ribbed suits, put on a reasonable advance and one regarded as representative. Shipments of lightweight underwear continue fairly well for the time of the year but are not up to a year ago. New business in spring numbers is being received only in fair size lots. Wholesalers' stocks just now are probably larger than a year ago in most underwear styles, like men's and boys' numbers. Their reorders at present, therefore, are merely for fill-in sizes and do not represent any important new buying.

Shipments for this June of several numbers of men's lightweight underwear staples, like athletic shirts, were less than a year ago, according to the Department of Commerce. The decline, although not serious, confirmed the market impression that re-ordering of these numbers of spring underwear was below expectations. The explanation was that early offerings on the part of all buyers in lightweight numbers was so large that new business now could hardly be as active as usual. Six months shipments of men's athletic shirts this year gained 15 per cent. Other numbers of lightweight underwear showed a gain during the month of June however. Shipments for the month of knit shirts were 145,000 dozen compared with 95,000 the same month last year. The shipments of balbriggan shirts and drawers also showed a nice increase in June compared with the previous year.

A Bit of Color

Color in men's knit underwear will be an added feature of some of the lines when they are shown for the next spring season. One of the manufacturers selling direct to the retailer has already put on the market a men's knit trunk short with colored designs printed on the

New BRINTON Modern RIBBERS



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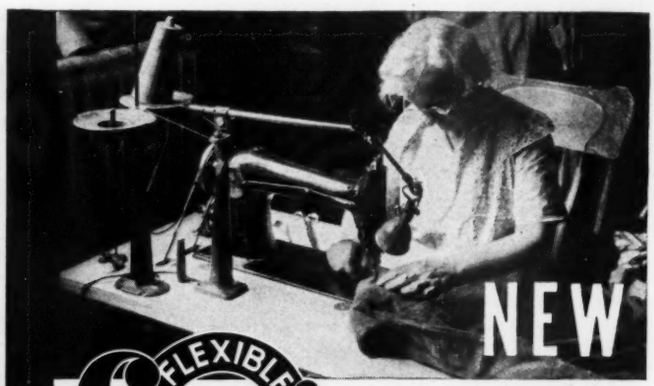

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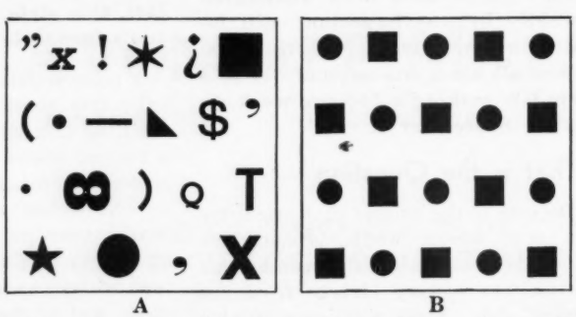

A B

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Which is more pleasing to the eye, Panel A or B? One is a "crazy quilt" of figures, while the other is a harmonious design. Some firms have a variety of different styled wrappings, or a number of products packed in different containers. The result is a hodgepodge of designs without relation to each other, or devoid of any one style.

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whole garment. The success of fancy colored prints in men's woven shorts is looked upon by these manufacturers as a precedent for success in the knit garments. It is believed that for those men who insist on knit underwear the use of color in the right way will increase the attractiveness of the garment, and possibly for others, who have been wearing the woven shorts, the knit garments will have a large appeal on account of the color. Printers and others who have been working on the idea are known to have been successful in attaining both fastness and attractiveness in effect, in the new knit underwear garments, and there is considerable confidence that it offers a larger field for the maker of knit underwear.

Approximately 50 per cent of all knit cotton wool underwear is sold to wholesalers but sales direct to retailers predominate in both knit rayon, silk and woven cotton athletic underwear lines, according to a report of the Underwear Institute. Department stores were the largest single retail outlet for knit cotton-wool underwear but were followed closely by specialty stores, chain stores and mail order houses. Nearly one-fourth of the total volume of woven cotton athletic underwear was sold direct to specialty stores, such as men's furnishings, haberdasheries and like outlets. The report also showed the inclination of the smaller mills to sell to jobbers to a far greater extent than the larger mills.

Production of all types of underwear in 1936 covering the knit cotton and wool, knit rayon and silk and woven goods, amounted to 46,742,000 dozen, with a value of $137,590,000. This compares with production of 39,740,000 dozen, valued at $122,190,000 in 1935. The reports of the Department of Commerce to date for this year indicate that production is being maintained at a rate that should show a substantial gain over 1936, which was the record year for the industry. In its report to members on the course of the industry since 1933, the Underwear Institute shows that the low point in the last five years was in 1934, when production totalled 37,290,000 dozen. Last year the largest single item in the knit, cotton and wool division was made up of men's athletic shirts. The report shows that the polo shirt production last year amounted to 1,133,000 dozen, valued at $4,249,000.

Hosiery Shipments Show Favorable Trend in June

The National Association of Hosiery Manufacturers, in its current issue of the *Statistical Bulletin* of the hosiery industry, reports that total shipments of all types of hosiery increased from 9,758,687 dozen pairs in May to 9,936,271 dozen pairs in June, 1937, a gain of 1.8 per cent. In contrast to the moderate decline in shipments of women's full-fashioned hosiery, men's half-hose, and children's and infants' hosiery experienced from May to June in past years, shipments of these types increased between May and June of 1937. The normal sharp decline from May to June in the demand for women's seamless hosiery, excluding wool, and anklets was checked considerably this year. Shipments of ribbed goods, after the favorable development of May, showed a further modest gain, and demand for woolen goods rose by more than the usual seasonal amount. The accompanying table compares actual changes in shipments of hosiery for the major divisions of the industry from May to June of this year with normal changes based on past experience, and shows the extent of increases in shipments during the first half of 1937 as compared with the first half of 1936.

The 9,936,271 dozen pairs of hosiery of all types shipped in June, 1937, were 1,089,567 dozen pairs, or 12.3 per cent, greater than shipments of 8,846,704 dozen pairs in June, 1936. Women's full-fashioned shipments in June, 1937, were 21.1 per cent more than shipments twelve months previous, while the gain in the case of seamless types as a group was 8.7 per cent. Within the seamless group, shipments of men's half-hose, excluding wool, and shipments of cotton bundle goods showed little change. Increases for the other seamless types ranged from 10.2 per cent in the case of women's seamless hosiery to 47.9 per cent for woolen goods.

An Eye on the Knitting Mills

Ellis-Carter Hosiery Mill, South Pittsburg, Tenn., has installed 16 new machines and 7 more will be added later.

Hickory (N. C.) Knitting Mills, Inc. has begun operations. This plant is located in the building formerly occupied by another hosiery company.

Crisp County Hosiery Mills, Cordele, Ga., are more than doubling their capacity.

Bossong Hosiery Mills, Inc., Asheboro, N. C., are planning to build an addition of one story and basement. Also a boiler room 50x40 feet will be built.

Interests in Columbia, S. C., are planning to charter a corporation to be known as the Spartan Hosiery Mills, which will be located in Spartanburg, S. C.

A new hosiery mill will be started up in Englewood, Tenn., by Virginia interests.

Durant (Miss.) Manufacturing Company, makers of hosiery, has moved into a new building, which was erected especially for the plant.

McMain Hosiery Mill, Marion, N. C., has begun operations on the 42 automatic knitting machines which are the initial equipment.

Application for charter has been made by the Hickory (N. C.) Knitting Mills, Inc. Capital stock is to be $150,000. The new concern will occupy two buildings.

Borden & Beck Hosiery Mill, Cranberry, N. C., is building a new unit to house 50 knitting machines.

Priestly Knit Goods Company is the name of a new organization that will manufacture and sell knit goods. Details of the company's plans have not been announced, but it is expected that the plant will be located in the vicinity of Charlotte, N. C.

Hosiery Shipments

Branch	Dozens of Pairs: June 1937	Dozens of Pairs: Change from May, 1937	Per Cent Change in Shipments May to June	First Six Months: 1937	First Six Months: 1936	Per Cent Increase 1937 over 1936
Women's full-fashioned	3,118,593	+ 97,640	+ 3.2	19,050,297	16,289,217	17.0
Women's seamless, excl. wool	1,041,515	— 73,464	— 6.6	6,987,762	5,943,273	17.6
Men's half-hose, excl. wool	2,619,833	+ 27,302	+ 1.1	17,234,403	15,887,903	8.5
Children's and infants' hosiery	432,293	+111,506	+34.8	2,873,838	2,648,532	8 5
Anklets	1,862,369	— 80,908	— 4.2	13,819,750	11,316,854	22.1
Cotton bundle goods	280,478	— 1,559	— .6	1,966,025	1,737,830	13.1
Ribbed goods	298,742	+ 19,172	+ 6.9	1,780,977	1,336,889	33.2
Woolen goods	282,448	+ 77,895	+38.1	1,232,265	810,667	52.0
Total, all types	9,936,271	+177.581	+1.8	64,945,317	55,971,165	16.0

REVIEW OF THE YARN MARKETS

Drastic Decline in Cotton Affects Yarns and Delays Fall Coverage —Rayon Interest Slightly Smaller with Signs of Better Movement in Worsted and Silk

Philadelphia, August 16, 1937

DULLNESS has been the rule in all yarn markets this month and except in cotton the price trend has been somewhat firmer. Wool has been stronger and this is reflected in a steadier tone to the worsted yarn situation with signs of a better demand appearing. In silk the tone has been steady with no decided change in the last couple of weeks although prices are lower than a month back. Manufacturers have bought more freely but not heavily. In rayon yarns, manufacturers are taking in yarns at a fast rate but when books were opened for new orders this month demand was not as large as in previous months. Cotton yarns are waiting for the raw market to steady after its drastic shakeout.

Cotton Yarns

Although unsteady cotton yarn prices showed no important change until the Government crop estimate was released August 9; following the drop in cotton then yarns acted in sympathy. At present yarns are 2 to 4 cents lower than last month and buyers are not showing a large interest yet, not being sure bottom has been reached.

Raw cotton is approximately 6 cents lower in the month and yarns 2 cents to 4 cents so that margins of spinners have continued to suffer and at present have reached what many of them term a cost or no-profit basis, most of the gain in this respect of the previous year having been lost. At present yarn prices show no great difference from a year ago and once confidence is restored the trade feels that such attractive price levels will tend to make the fall season a banner one.

Examples of the decline in prices are 10s carded frame spun cones that were quoted at 25½ cents at the middle of July sold at the middle of August at 22½ to 23 cents; 20s two-ply warps quoted a month previous at 29½ cents sold this month down to 25½ to 26 cents although spinners generally were ½ cent above this. In combed yarns the main number in single 30s, dropped from 39c to 36c and some sales were closed in the last few days at 35c, a drop in the four weeks of 3 cents or more.

Mercerized yarns on July 21 reduced their prices 1 to 5 cents depending on the count, the first change made officially in their lists since last March. The cut took 60s two-ply down to 76c from 79c and knitters did not buy heavily after the decline. The market remained quiet and knitters said some of the processors were offering yarns somewhat under this list but that only small new orders were being booked. Therefore, on August 16 another reduction was made, bringing 60s two-ply down to 72 cents.

Manufacturers are almost ready to buy, inquiry being good but most buyers holding off to see if the bottom of the cotton decline has been reached. With cotton now at 10.50 compared with a 1937 high more than 4 cents higher, yarn buyers and buyers of cotton garments and fabrics will be able to cover at levels that assure a large volume of business.

Worsted Yarns

There has been a slightly firmer tone to the wool markets of the world this month but no important changes have been made in worsted yarn prices. If any changes have occurred they have been slightly higher as spinners are confronted with higher wage costs. The CIO is organizing the woolen and worsted industry more now than any time in the past and agreements have been made with a number of plants here, both weavers and spinners, which of course raises the cost of making yarns and goods. This must be passed on in the form of higher prices.

Men's wear weavers are between seasons They have been finishing their fall goods orders for which they had been previously covered in yarns. They opened tropicals for 1938 at 32½ to 35 cents a yard advances but to date have not been able to book much business although a good season is expected later. The regular spring lines for 1938 will be opened early in September and it is about that time that many in the trade expect a good demand for yarns to get under way.

There has been much better demand for dress goods yarns from these weavers but most of these fabrics are woolen and take only a small amount of worsteds. Some sales of 2-50s have been reported for this use at $1.90 in Bradford spun and fair to good demand from them is expected for the next few weeks while the mills make up the fall and winter fabrics.

In knitting counts dullness is the rule and spinners are curtailing, many here being on less than half time schedules. Even then some of them admitted making up stocks of yarns. Knitters are also going in more for the socalled cheapener yarns containing cotton or rayon which allows spinners to sell at much lower prices than when straight worsted is involved.

Rayon Yarns

There was less of a rush to place contracts for October delivery rayon yarns when most of the producers opened their books early this month than there was in recent months, although by the middle of the month most of them succeeded in selling the month's production. The fact remains, however, that it was necessary for producers to do more active soliciting this time than for many months past in order to get rid of the October production. Notwithstanding this, producers see no change over the balance of the year in the tight delivery condition of these yarns, especially when it is realized that the plant additions being erected by several producers will not get into production as early as originally expected, and in some cases they will be fortunate if this is accomplished during the first quarter of 1938, indicating that little help in the tight delivery picture can be had from increased production until well into the next year.

Books for October delivery were open with prices unchanged, but there were other factors in the manufacturing picture which caused manufacturers to cover less actively than in previous months. One of these was the general strike in the silk weaving industry, which affected most of the dress goods weaving establishments in the Pennsylvania area. Many manufacturers using rayon yarns refused to cover in view of this threat and stated that they would wait until this labor disturbance had been adjusted before they would place new yarn contracts. At the same time demand from the circular knit underwear trade has slowed down materially. The circular knit is feeling the effects of keener competition from trico underwear. New equipment to manufacture trico has been put on the market greatly increasing production per machine and lowering cost, which is reflected in new low retail price tickets on trico numbers not much above the better grade circular knit. Competition for circular knit is also keener because of a larger movement of rayon woven underwear.

Silk

Raw silk has advanced approximately 10 cents during the last month, although during the last week or 10 days a slightly easier tone has been apparent. The latter developed because of two important developments affecting this commodity. The first of these was the calling of a general strike in the silk weaving industry at the middle of the month, which affected the great bulk of the concerns in the North. This was a bearish influence on silk and in addition, there was some pressure on the market here and in Japan because of the widespread Japanese war preparations with its effect on the exchange markets. Notwithstanding these developments, the outlook for the balance of the year is for a very healthy demand from the consuming trades, weaving and knitting.

It is not expected that the silk weavers' strike will be prolonged, there being talk of a settlement at the present time so that the ground lost by these manufacturers during the walk-out is expected to be more than regained by increased consumption during September. Hosiery production and shipments continue to run at a record pace with the expectation of additional seasonal gains in the coming months.

Second Quarter Rayon Production Breaks All Records

Production of rayon filament yarn in the United States during the quarter ending June 30, 1937, broke all quarterly production records according to figures compiled by the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

Output for the entire industry aggregated 78,450,000 pounds for the second quarter of the year. This compares with production of 76,700,000 pounds during the first quarter of 1937 and a 1936 quarterly average of 69,400,000 pounds. The totals do not include rayon staple fiber production.

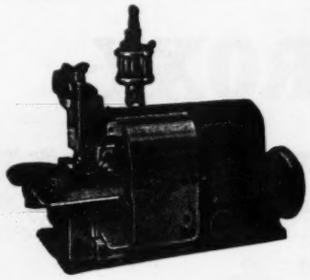
Gains were reported in the output of both viscose and cupra yarns and acetate yarns. Production of viscose plus cupra yarn amounted to 59,750,000 pounds against 58,950,000 pounds in the first quarter and a 1936 average of 53,700,000 pounds.

Acetate Production Up

Acetate production for the second quarter totaled 18,700,000 pounds against 17,800,000 pounds in the first quarter and a 1936 quarterly average of 15,700,000 pounds.

"These small increases in rayon yarn production, even after possible correction for reduced production due to labor troubles, bear out our previous remarks to the effect that new rayon producing capacity is coming into operation very slowly," states the *Organon*. "Thus, with the heavy fall business ahead, with producers' stocks practically at the vanishing point, and with little possibility of an increased production, the rayon picture apparently will continue to be very strong for some time to come."

Deliveries of rayon yarn were slightly lower during July, according to the *Organon's* index. This slight reaction is seasonal and is not surprising, especially in light of the extra-seasonal activity of recent months.



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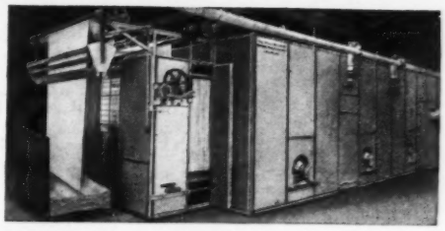
Cuts Costs, Improves Quality



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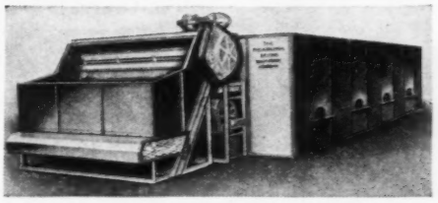

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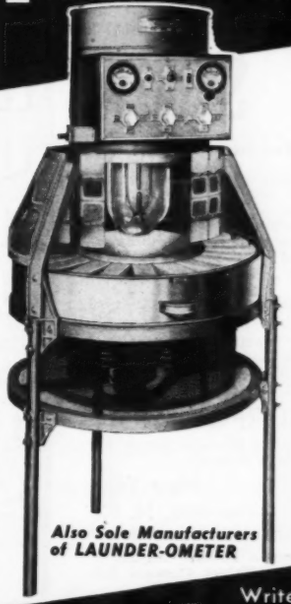

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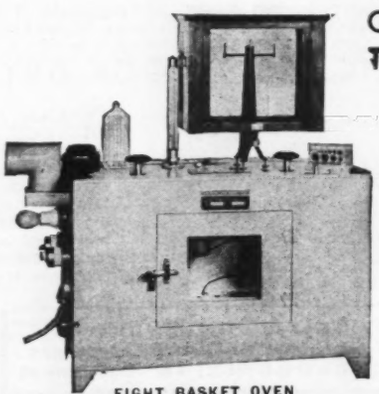

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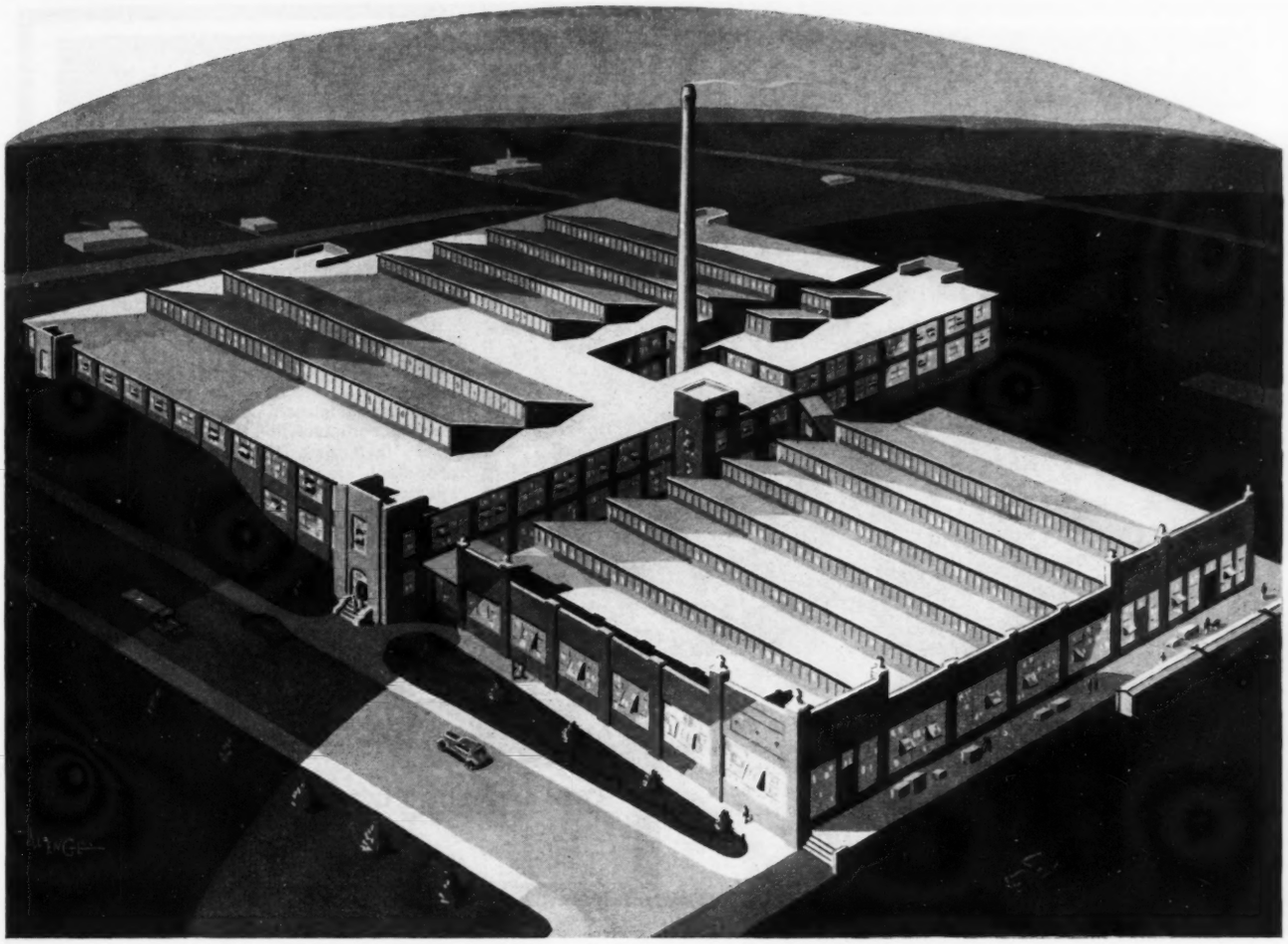

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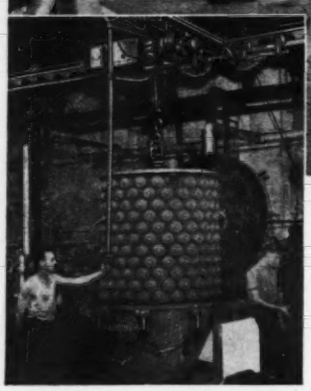

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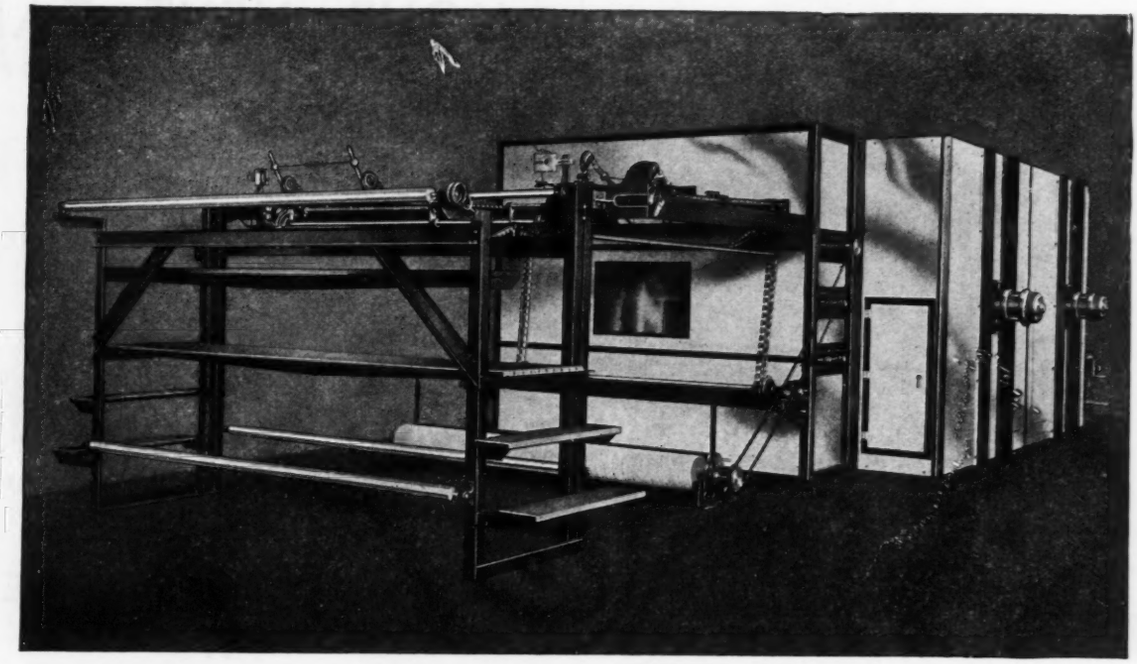

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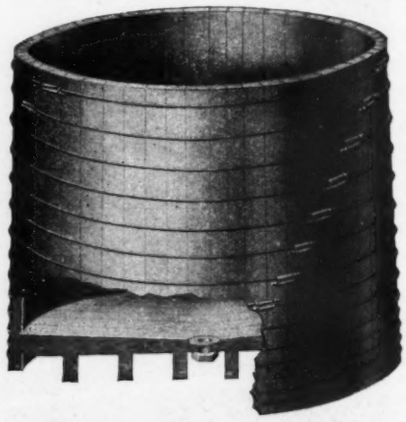

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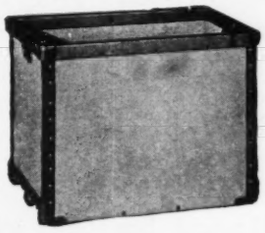

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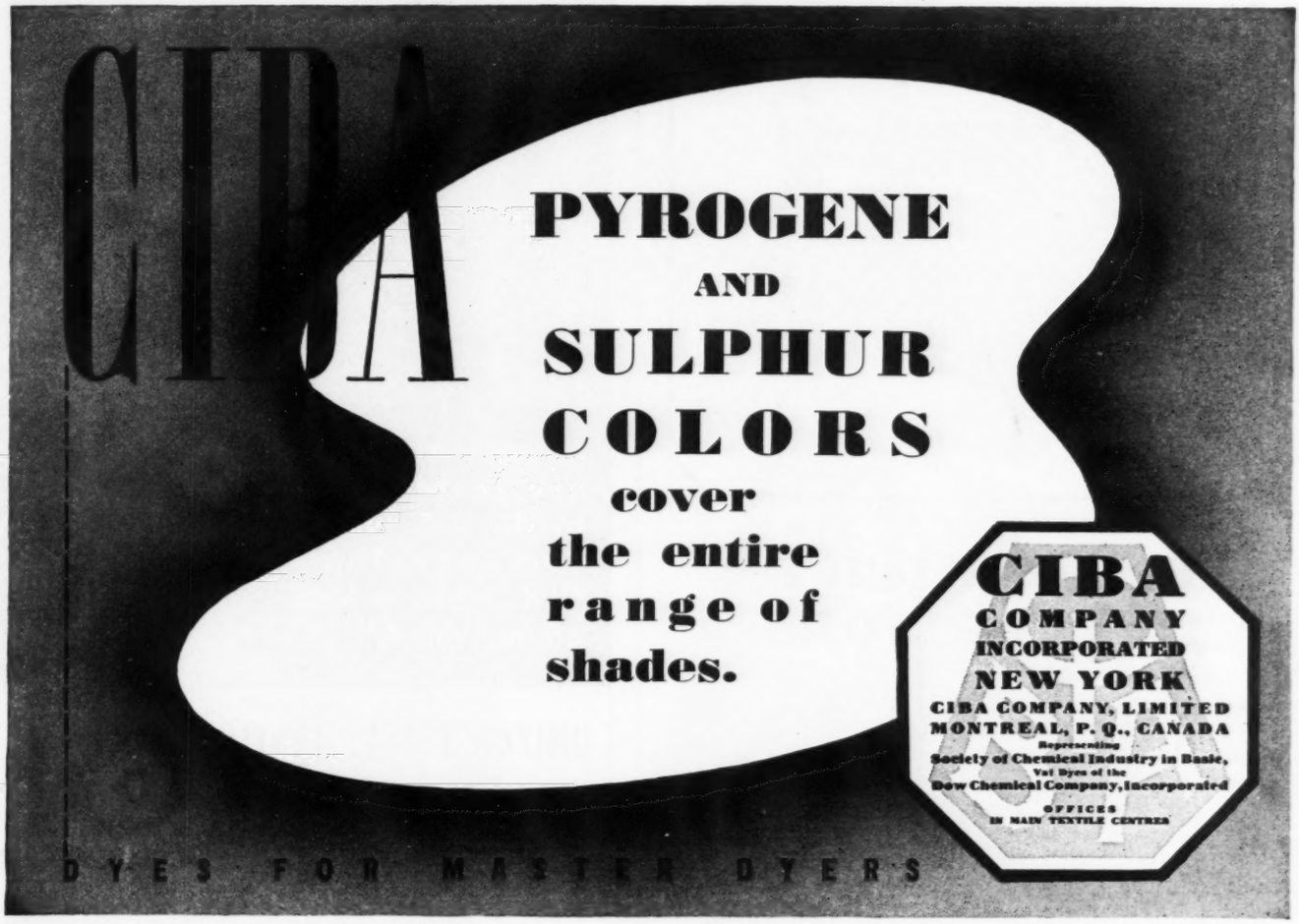

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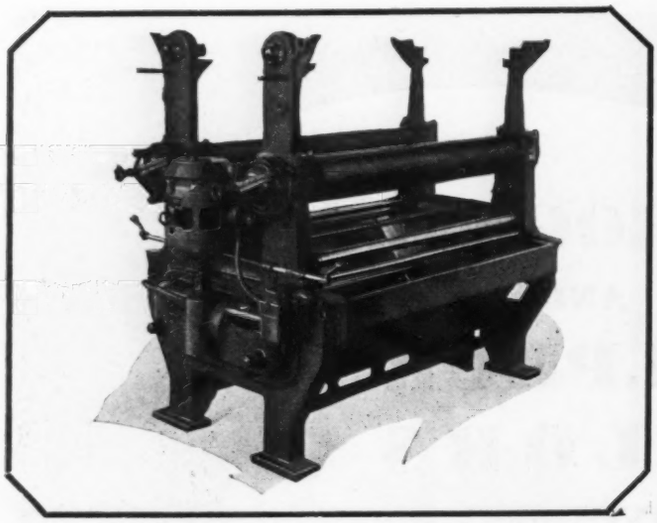

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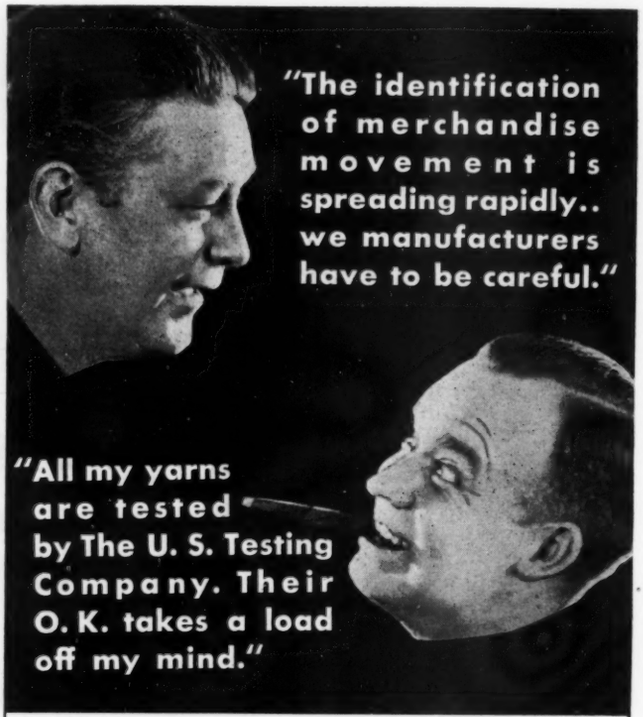
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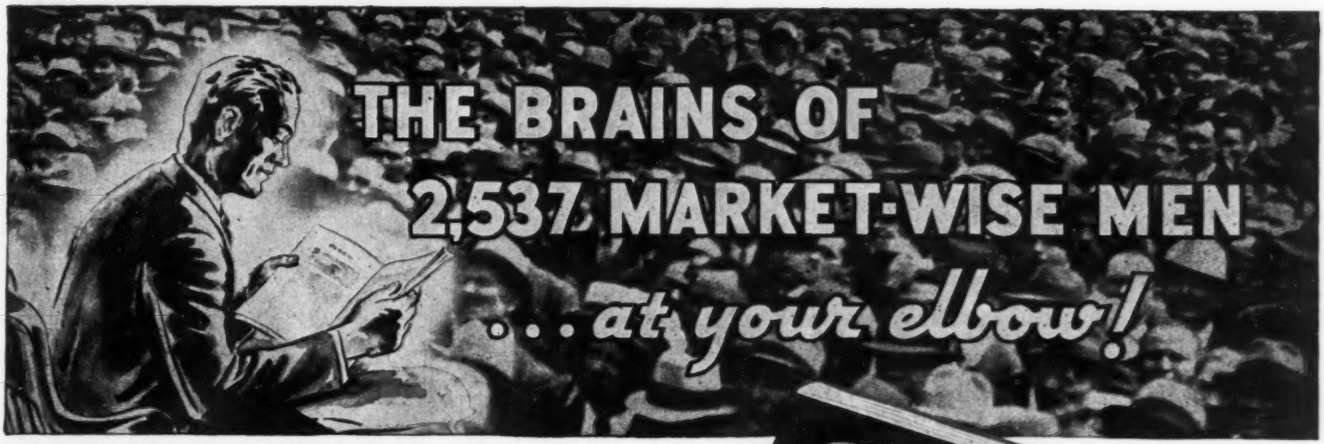

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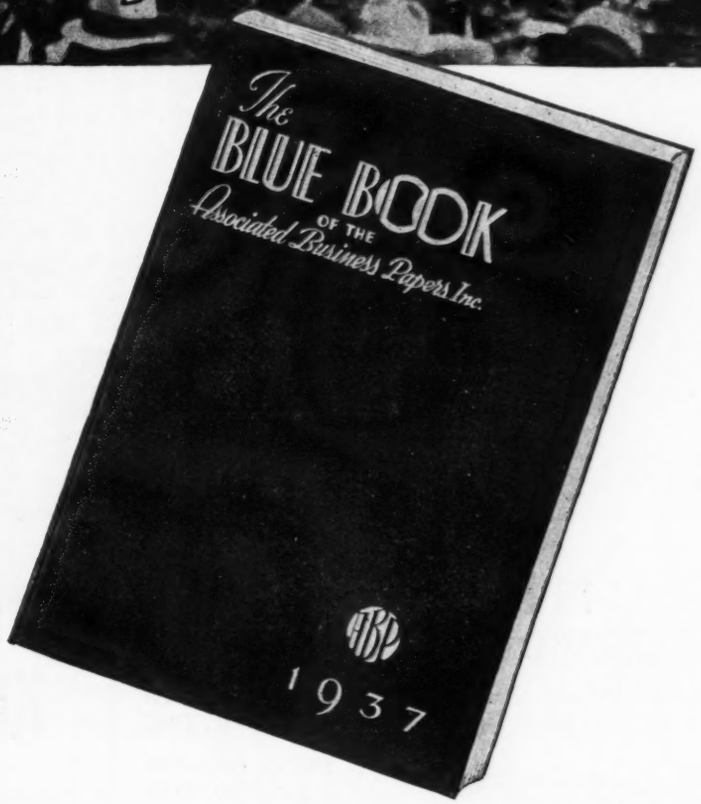

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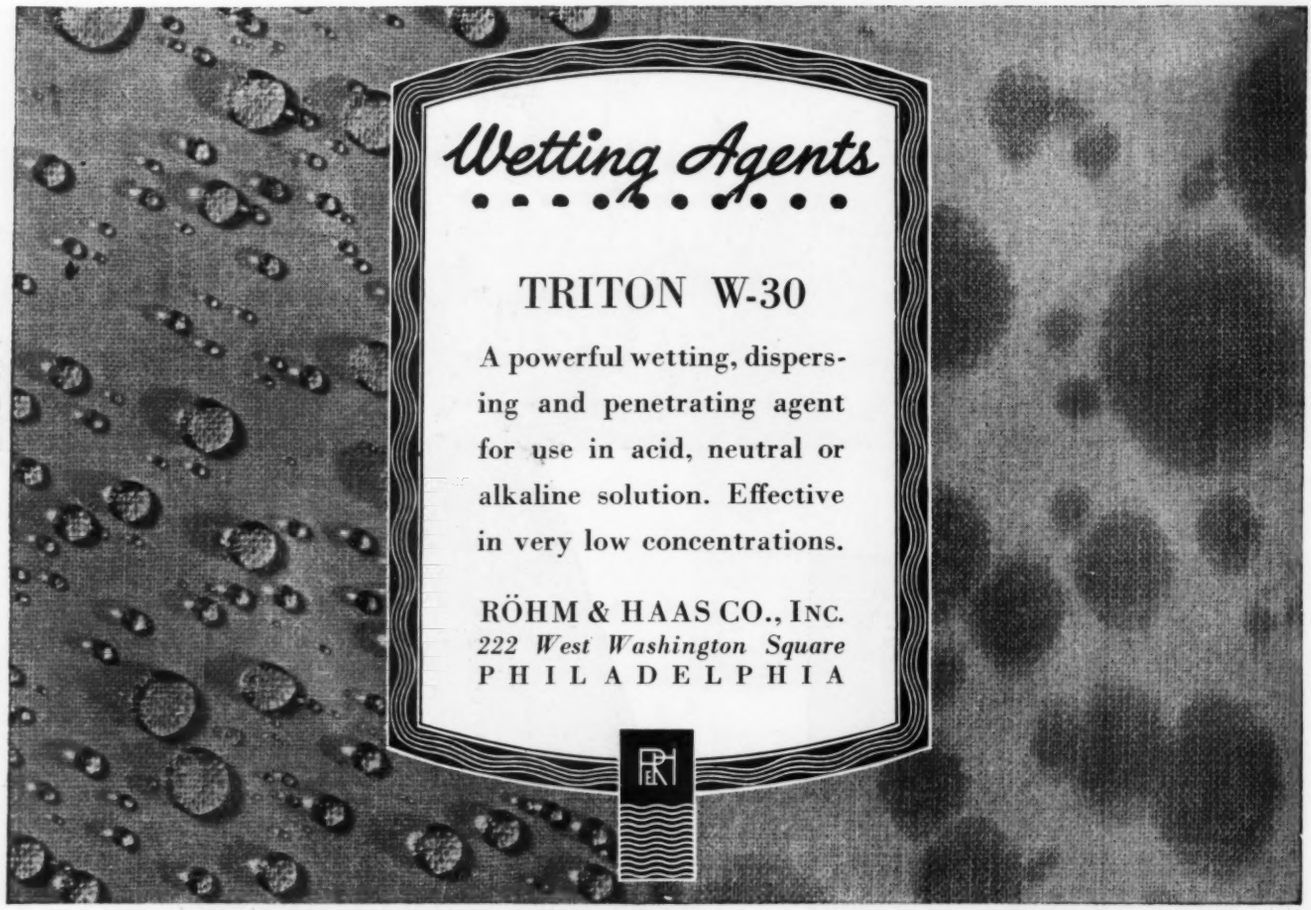
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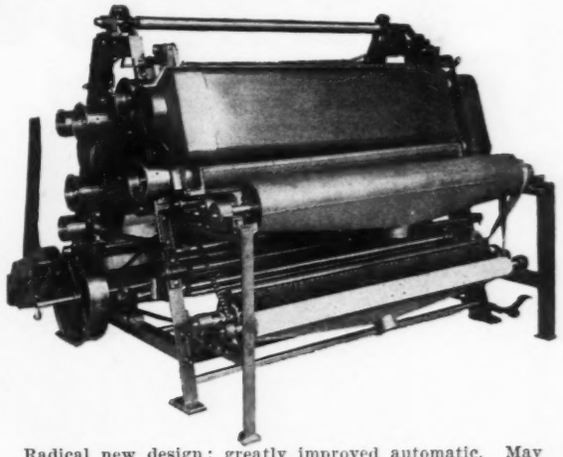

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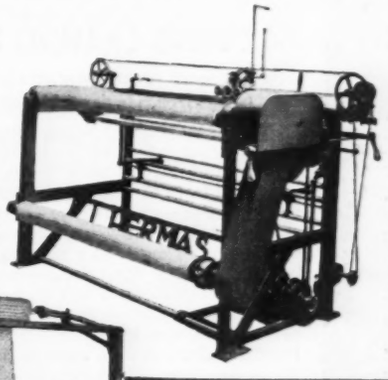

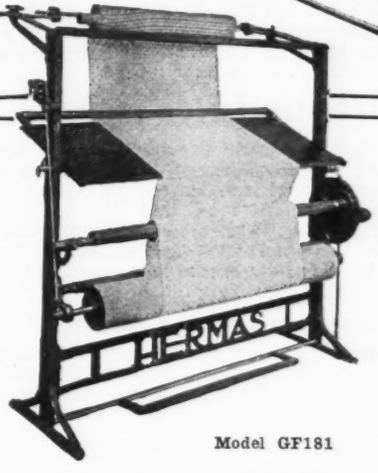

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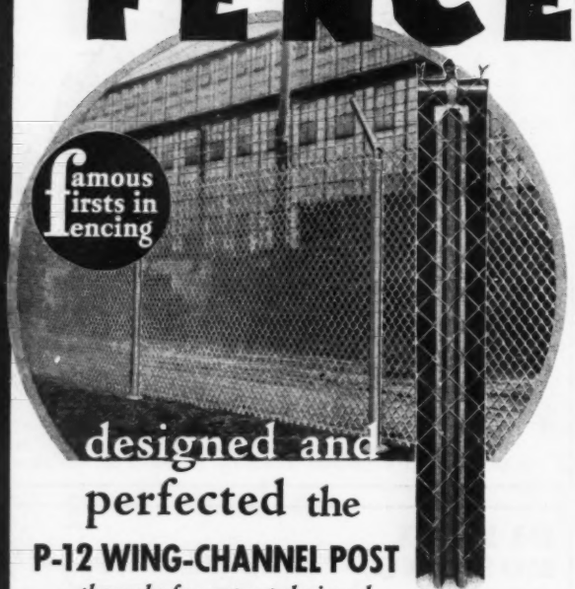

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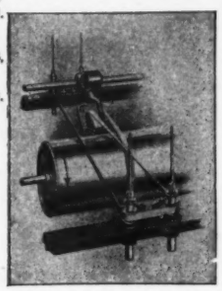

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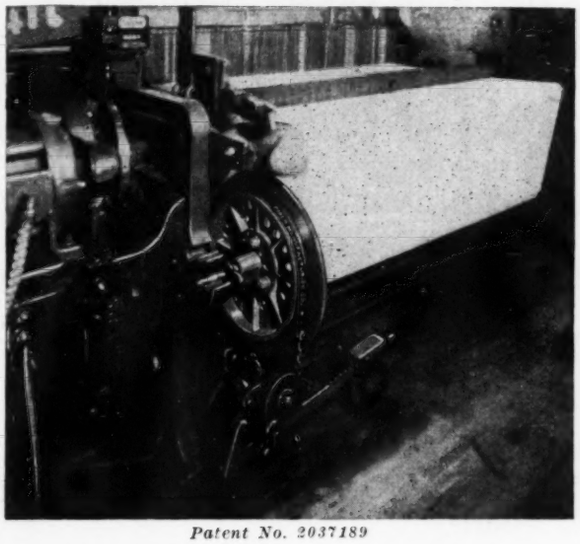

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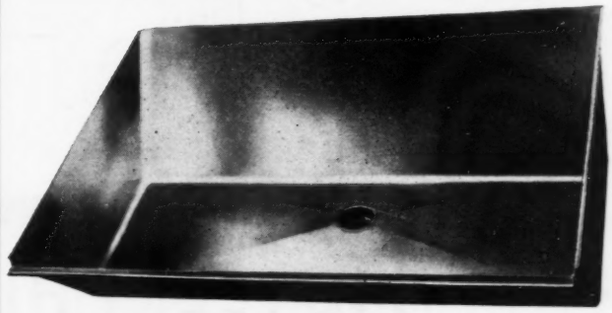

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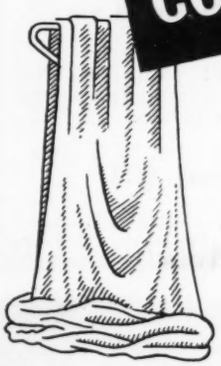

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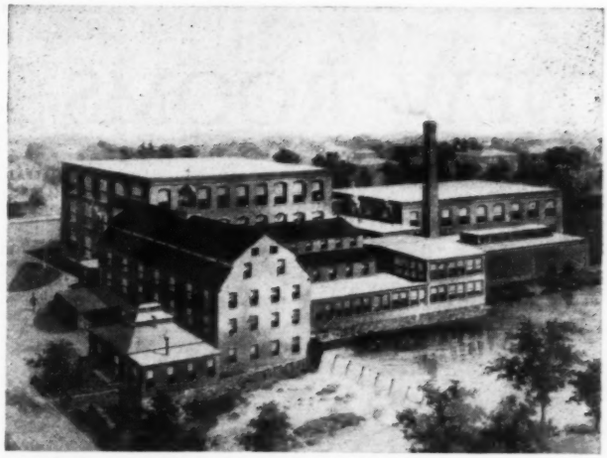

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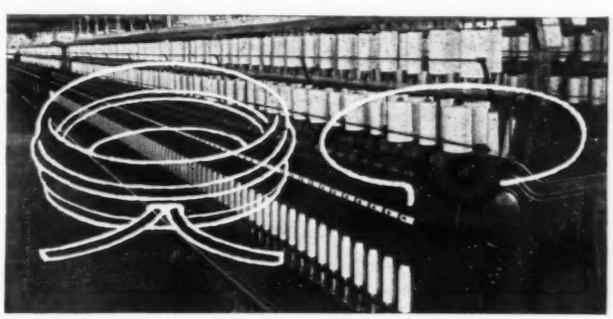

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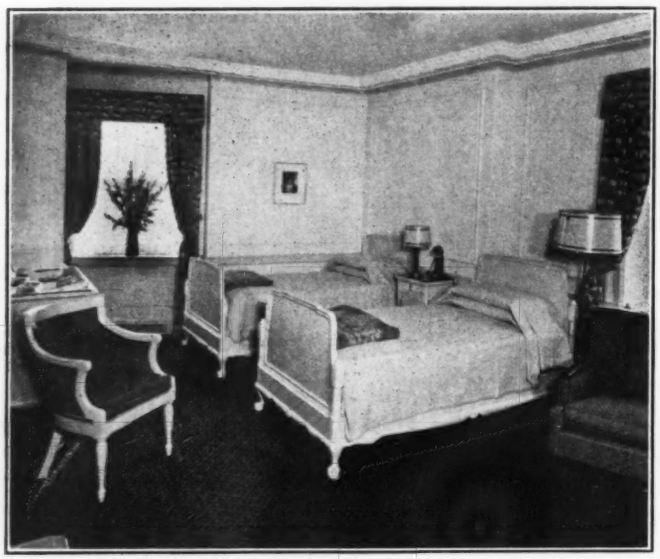

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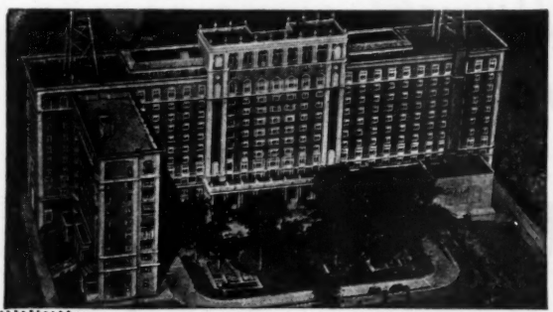

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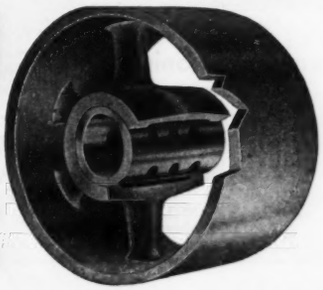

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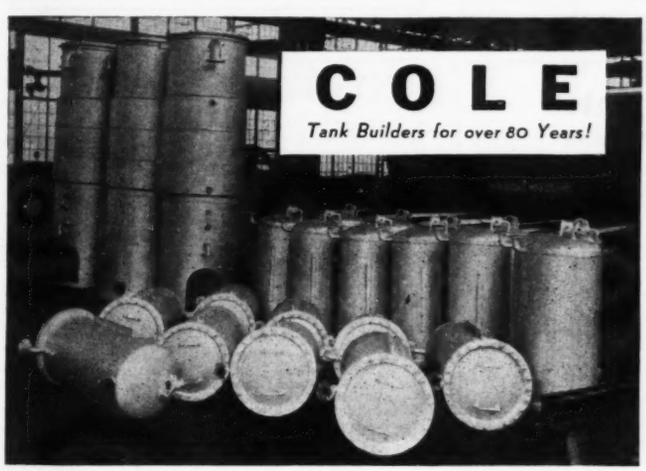

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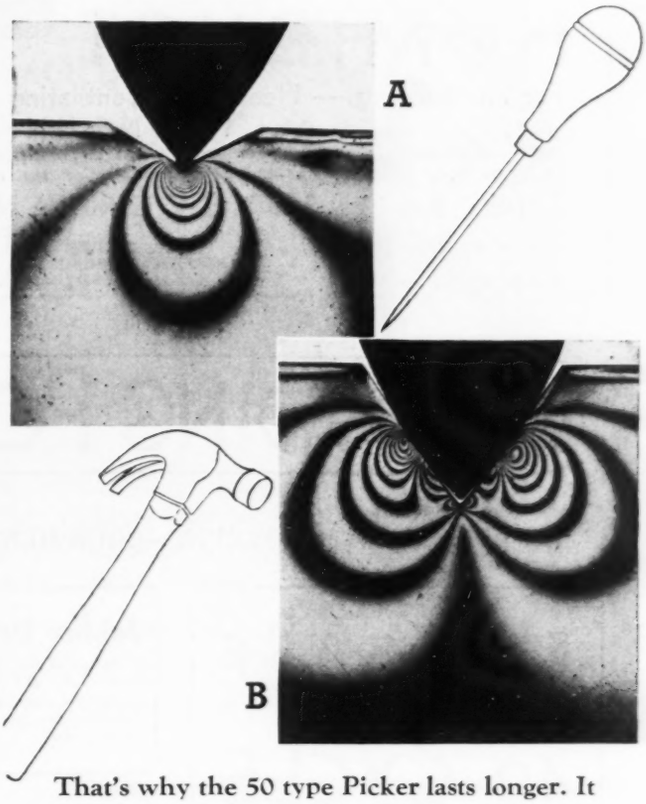

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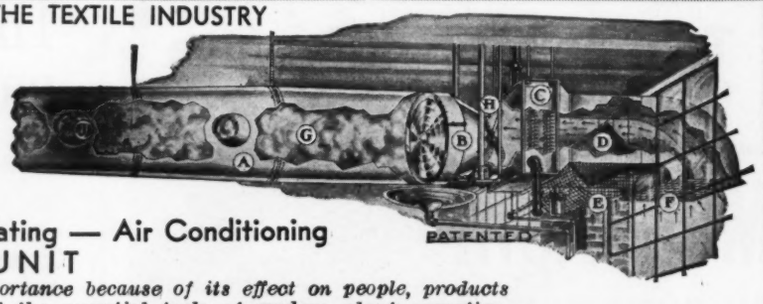

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Practical, able man wants position as overseer of carding. 39 years old. Has had experience on fine and coarse yarns, spun rayon and novelty yarns. Best references furnished. Now employed as second hand. 16 years as second hand, 3 years as overseer. Will go anywhere. Address Box No. 432, c/o COTTON, Grant Bldg., Atlanta, Ga.

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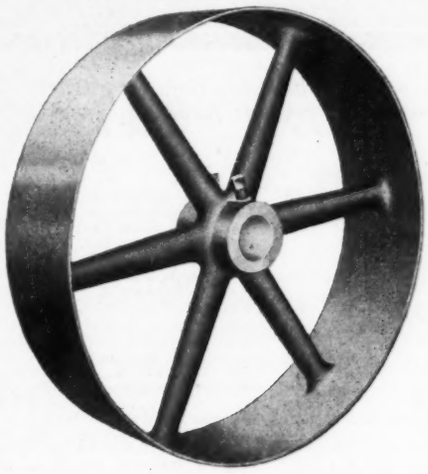

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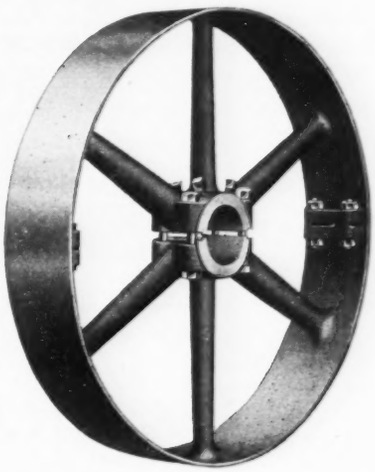

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A

Acme Steel Co. ..... *
Albany Felt Co. ..... *
Aldrich Machine Works 16
Alemite Division of Stewart-Warner Corp. 49
Allis-Chalmers Mfg. Co. 31
Allis Co., Louis ..... *
American Aniline Products, Inc. ..... *
American Casablancas Corp...112
American Moistening Co. ..... *
American Monorail Co. 91
American Pulley Co. 56
American Viscose Corp. ..... *
American Yarn & Processing Co. 126
Archer & Baldwin, Inc. 166
Arguto Oilless Bearing Co. ...160
Arkansas Co., Inc. 28
Armstrong Cork Products Co. .....26 and 89
Arnold Hoffmann & Co., Inc... 44
Ashworth Bros., Inc, ... *
Associated Business Papers, Inc. 155
Atlanta Envelope Co. ..... *
Atlas Electric Devices Co. ...145

B

Bahnson Co. 166
Barber-Colman Co. 99
Barkley Machine Works 154
Bleckman, Inc., S. 161
Borne Scrymser Co. ..... *
Bosson & Lane, Inc. 146
Boyle Co., Inc., A. S. 104
Brinton Co., H. 142
Brown Co., David ..... *
Brown Instrument Co. 21
Buffalo Electro-Chemical Co., Inc. 148
Burroughs Adding Machine Co. *
Butterworth & Sons Co., H. W. ..... *

C

Cameron Machine Co. ..... *
Campbell & Co., John 145
Ciba Company 153
Cleveland Tramrail Division..148
Clinton Co. 104
Clipper Belt Lacer Co. ..... *
Clover Leaf Mfg. Co. ..... *
Cocker Mch. & Fdry. Co. .... *
Cole Mfg. Co., R. D. 165
Colgate-Palmolive-Peet Co. ... *
Commercial Credit Co. ..... *
Commercial Factors Corp. 43
Continental-Diamond Fibre Co..151
Cooper Alloy Foundry Co. .167
Cowles Detergent Co. 159
Crane Co. ..... *
Crompton & Knowles Loom Works ..... *

D

Dary Ring Traveler Co. 153
Dayton Rubber Mfg. Co. .... *
Denison Mfg. Co. 148
Detergent Products Corp. 102
Dommerich & Co., L. F. 48
Drake Corp. 19
Draper Corporation 1
Dronsfield Bros., Ltd. 162
Dupont de Nemours & Co., Inc., E. I., Dyestuffs Division ... *
Dupont de Nemours & Co., Inc., E. I., Fine Chemicals Division 47
Dupont de Nemours & Co., Inc., E. I., Finishes Division ... 93
Dupont de Nemours & Co., Inc., E. I., Grasselli Chemicals Dept. ..... *
Dupont de Nemours & Co., Inc., E. I., R. & H. Chemicals Dept. ..... *

E

Easton & Burnham Mch. Co...158
Eaton, Paul B. 166
Ediphone, The Thomas A. Edison, Inc. ..... *
Emerson Apparatus Co. 146
Emmons Loom Harness Co. .. 30

F

Fafnir Bearing Co. ..... *
Fiber Mfg. Co. 161
Flexrock Co. ..... *
Foster Machine Co. ..... *
Fostoria Pressed Steel Corp...142
Foxboro Co. ..... *
Franklin Process Co. ....Inside Front Cover
Frigidaire Corporation ..... *

G

Gastonia Textile Sheet Metal Works, Inc. 160
Gates Rubber Co. ..... *
Gaylord Container Corp. ..... *
General Coal Co. ..... *
General Dyestuff Corp. 13
General Electric Co. ..... *
General Electric, Nela Park.. 52
General Electric Vapor Lamp Co. 14
Goldens' Foundry & Mch. Co...167
Goodyear Tire & Rubber Co... 87
Graton & Knight Co. 165
Grinnell Co. 25
Gulf Oil Corporation 7

H

H & B American Machine Co. .....Front Cover
Hauser-Stander Tank Co. 150
Henderson Fdry. & Mach. Works 20
Hercules Powder Co. 54
Hermas Machine Co. 159
Hetherington & Sons, Inc., John 162
Hinde & Dauch Paper Co. ... *
Hotel Atlanta Biltmore 164
Hotels Dinkler 162
Hotel McAlpin 164
Hotel Philadelphian 162
Hotel Stevens 164
Houghton & Co., E. F. ..... *
Howard Bros. Mfg. Co. 12
Hunter Machine Co., James ..149
Hurley-Johnson Corp. 160
Hussong-Walker-Davis Co. ... *
Huyck & Sons, F. C. ..... *
Hyatt Bearings Division ..... *

I

Industrial Rayon Corp. 130
International Nickel Co., Inc. 50

J

Jacobs Graphic Arts Co. 157
Johnson Bronze Co. 108
Johnson, Chas. B. ..... *
Johnson Corporation 42
Johnson Service Co. ..... *

K

Kali Mfg. Co. 146
Keever Starch Co. 158

L

Langevin, George F. ..... *
Laurel Soap Mfg. Co. 150
Lazenby & Co., Inc., F. A.....154
Link-Belt Co. 23
Lola Mills, Inc. 140
Loper Co., Ralph E. 148
Lunkenheimer Co. 40

M

Maguire & Co., Inc., John P...158
Manhattan Rubber Mfg. Co. Division 51
Maple Flooring Mfg. Assn. ... *
Mathieson Alkali Works 4
Meese, Inc. ..... *
Merrow Machine Co. 145
Mill Factors Corp. ..... *
Moccasin Bushing Co. 165
Morehead Mfg. Co. 110
Morse Chain Co. ..... *

N

National Better Business Bureau 152
National Oil Products Co. ... 35
National Ring Traveler Co. ..104
National Supply Co. 24
New York & New Jersey Lubricant Co. 112
North, Inc., Frank G. 104

O

Old Dominion Box Co. 142
Onyx Oil & Chemical Co. 163

P

Page Fence Asso. 160
Parks-Cramer Co. 29
Permutit Co. 41
Philadelphia Drying Mchry. Co. 145
Philadelphia Quartz Co. ..... *
Pittsburgh Plate Glass Co. ... 34
Pomona Pump Co. 167
Power Transmission Council..... *
Proctor & Schwartz, Inc. 97

R

Randall Graphite Products Corp. ..... *
Raymond Service, Chas. P. ...166
Reeves Pulley Co. 53
Reilly Tar & Chemical Co.... *
Reliance Electric & Eng'g. Co. .....10 and 11
Republic Rubber Co. 95
Republic Steel Corp. ..... *
Rhoads & Sons, J. E. 26
Robert & Company 147
Rochester Eng'g. & Centrifugal Corp. ..... *
Rockwood Mfg. Co. ..... *
Rohm & Haas Co. 156
Royce Chemical Co. ..Back Cover
Royersford Needle Works, Inc..124

S

S. K. F. Industries, Inc. ..... *
Saco-Lowell Shops 9
Sargent's Sons Corp., C. G. .. *
Scholler Bros., Inc. 140
Scott Co., Henry L. 102
Scott & Williams, Inc. 117 and 118
Seydel-Woolley & Co. ..... *
Sherwin-Williams Co. ..... *
Showalter Printing Co., A. J...150
Sipp-Eastwood Corp. 102
Sirrine & Co., J. E. 106
Smith, Drum & Co. ..... *
Socony-Vacuum Oil Co., Inc. .....17 and 18
Sonoco Products Co. 100
Solvay Sales Corp. 146
Southern Sizing Co. 153
Staley Mfg. Co., A. E. ..... *
Standard Brands, Inc. ..... *
Standard Oil Co. of Ky. ..... *
Steel Heddle Mfg. Co...45 and 46
Stein, Hall & Co., Inc. 38
Stewart Iron Works 158
Stonhard Co. ..... *
Sturtevant Co., B. F. 8

T

Taylor Instrument Companies .....32 and 33
Terrell Machine Co. 110
Texas Co. 2
Textile Apron Co. 108
Textile Banking Co. ..... *
Textile Finishing Machinery Co. ..... *
Textile Machine Works 122
Tierney, Jr., Samuel 166
Three-In-One Oil 104
Torrington Co. .....135 and 136
Trading Post Exchange 166
Truscon Laboratories 3
Tubize Chatillon Corp. 39

U

Union Special Machine Co. ... 6
Universal Winding Co. 27
U S Bobbin & Shuttle Co. ... 36
U. S. Ring Traveler Co. 156
U. S. Rubber Products, Inc... *
U. S. Testing Co., Inc. 154

V

Van Vlaanderen Machine Co...154
Veeder-Root, Inc. ....Inside Back Cover
Victoria Paper Mills Co. .... *

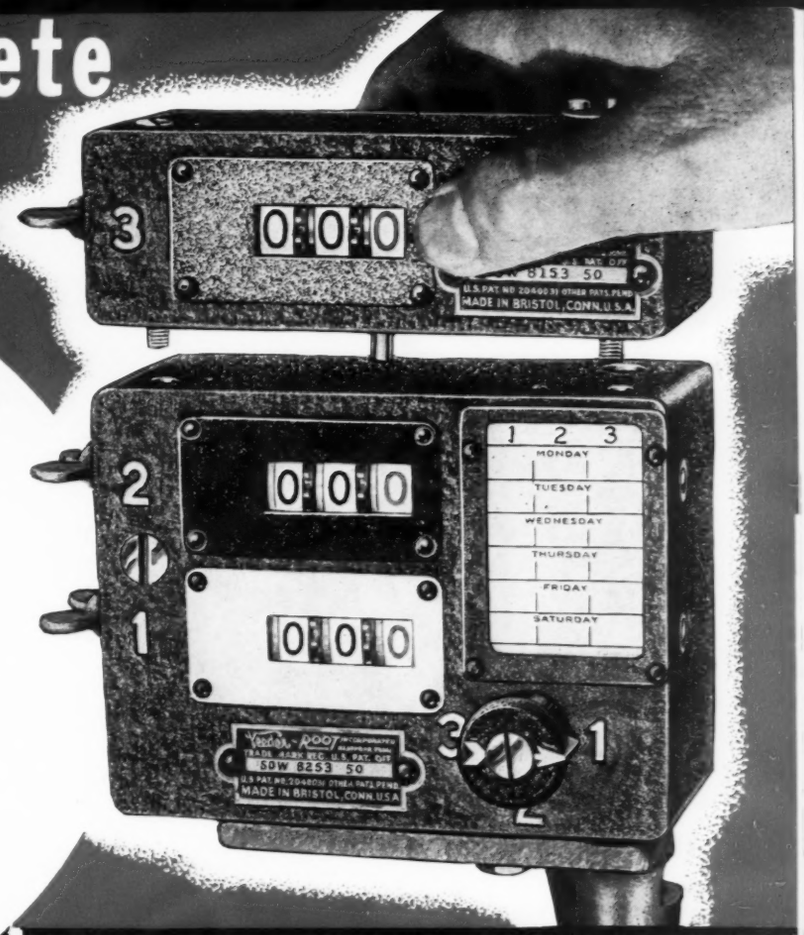
W

Wallerstein Co., Inc. 37
Want Ads 166
Warwick Chemical Co. ..... *
Waterman, Currier & Co., Inc...140
West Point Foundry & Mch. Co. 22
Westinghouse Electric & Mfg. Co. 15
Whitin Machine Works 5
Whitinsville Spinning Ring Co..163
Wildman Mfg. Co. 128
Willcox & Gibbs Sewing Machine Co. 132
Wolf & Co., Jacques ..... *
Worthington Pump & Mchry. Corp. ..... *
Wright Co. 112

Y

Yale & Towne Mfg. Co. ..... *

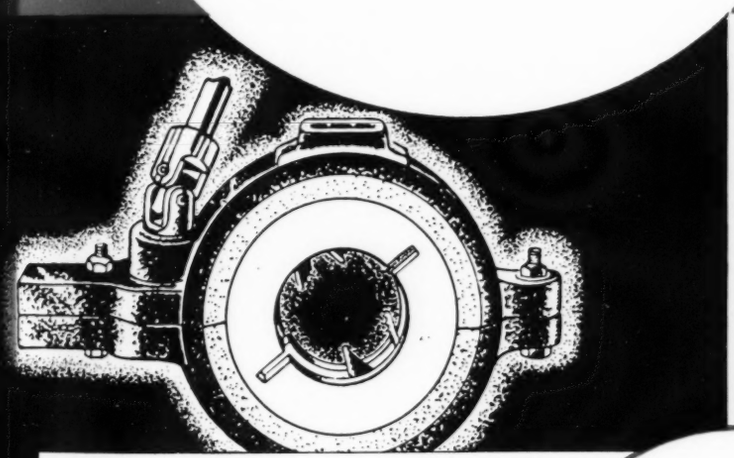
The Only Complete Pick Counter...

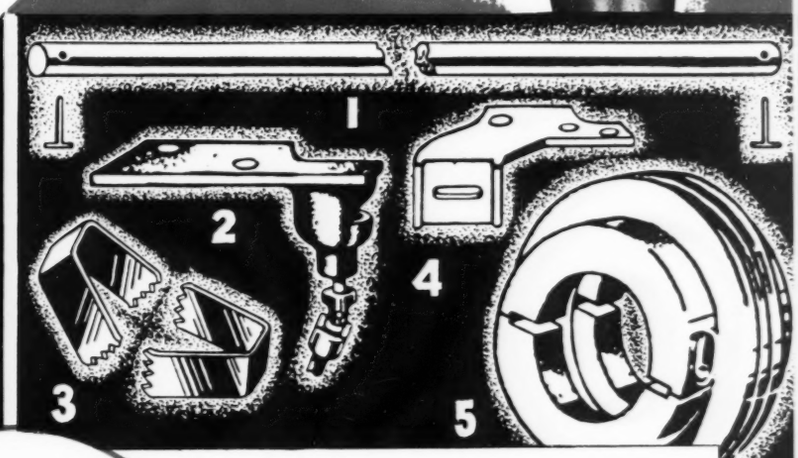


The Veeder-Root 2-3 RESET

There are no extras to buy or make, when you order Veeder-Root 2-3 Pick Counters. You get everything needed for complete installation of a 2-shift counter to take care of today's requirements. And if operation ever goes to 3 shifts, then you can quickly convert your 2-shift counter to a complete 3-shift counter . . . by simply adding the 3rd shift unit, as shown above.

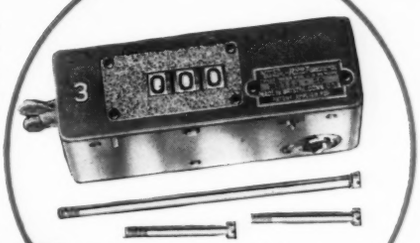
Observe what you get for your money when you buy a Veeder-Root 2-3 Pick Counter. ***No other pick counter provides all these features . . . . .***





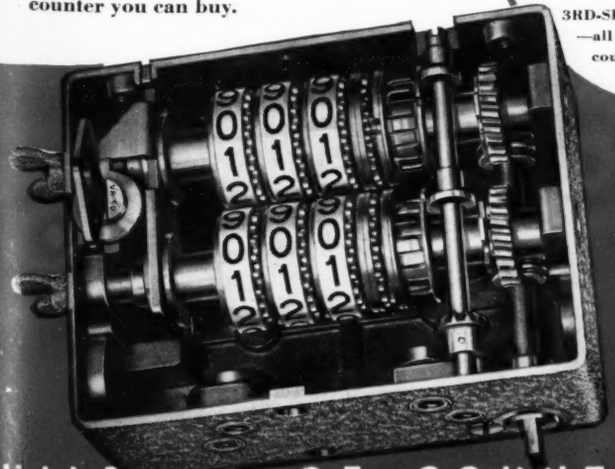
Above, ***Worm & Housing.*** **Worm split for easy attachment. Lubricated by oil well, or Zerk or Alemite fittings. Universal joint permits drive at any angle up to 40°. Heavy milled thread gives long wear. Compression clamps remove need to drill shaft.**

Below, ***the Mechanism,*** **designed and made to give the accuracy and durability of a fine timepiece. An inside look at the best pick counter you can buy.**



3RD-SHIFT UNIT, and 3 brass screws —all you need to convert a 2-shift counter to a 3-shift counter . . . in your own mill

1. **Drilled drive rod of cold rolled steel, with pins to fasten into universal joints.**
2. **Counter bracket.**
3. **Spring steel compression clamps (save installation costs).**
4. **Cast iron loom bracket, one of 48 styles.**
5. **Worm gear.**



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